TOMASO 2827960

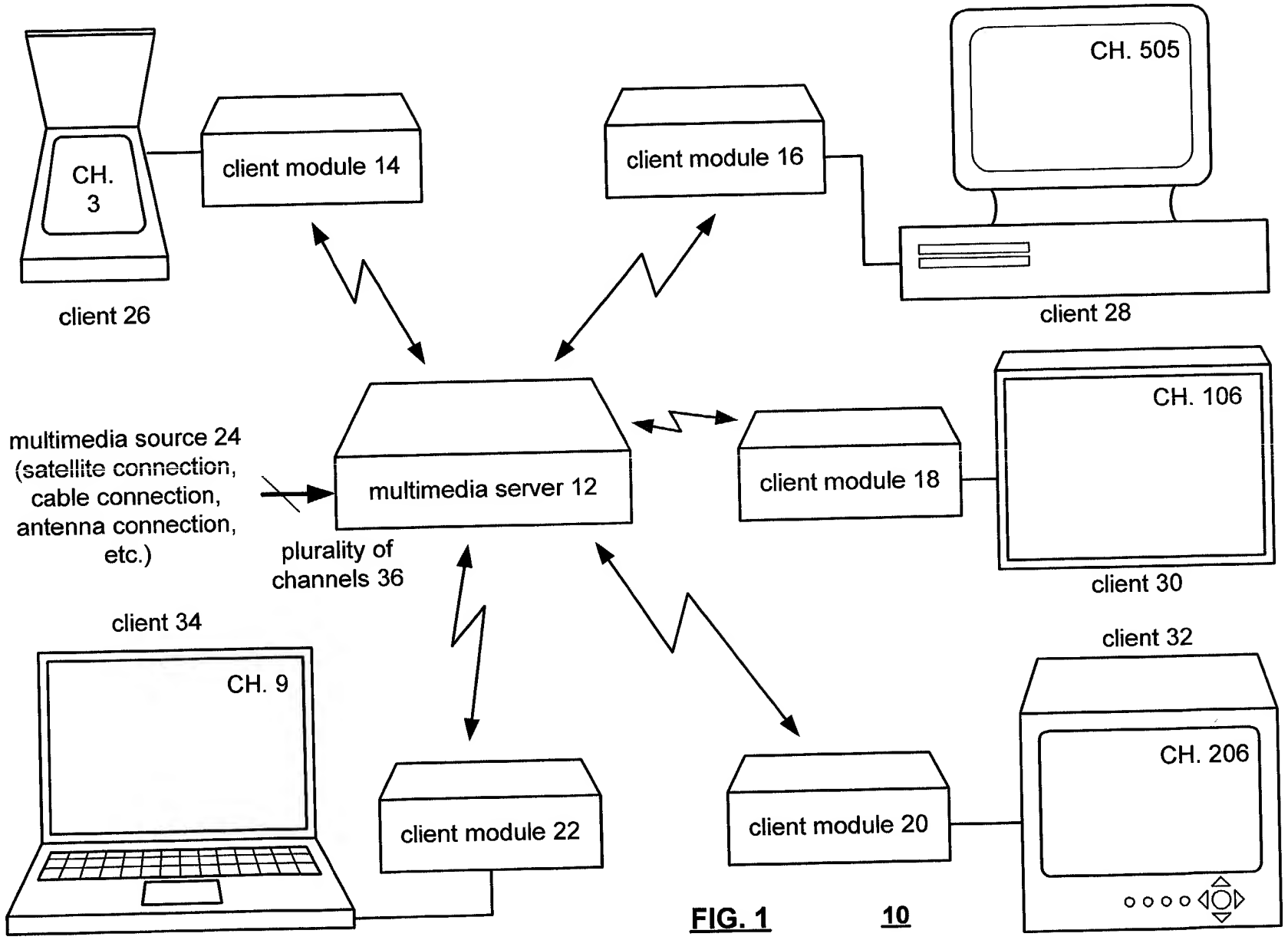


FIG. 1 **10**

Tomeso' Exhibit

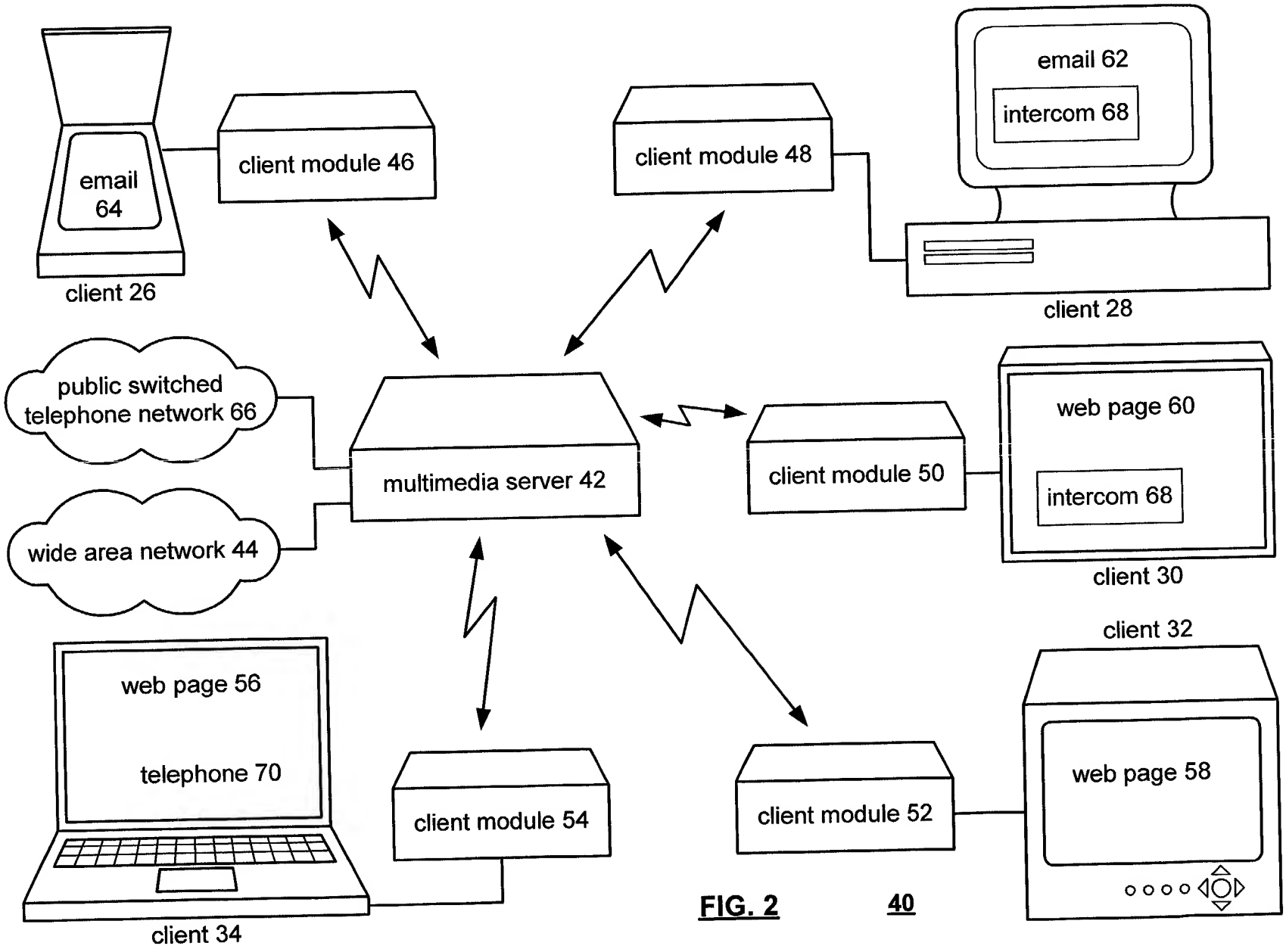


FIG. 2 40

TOP250 C8278960

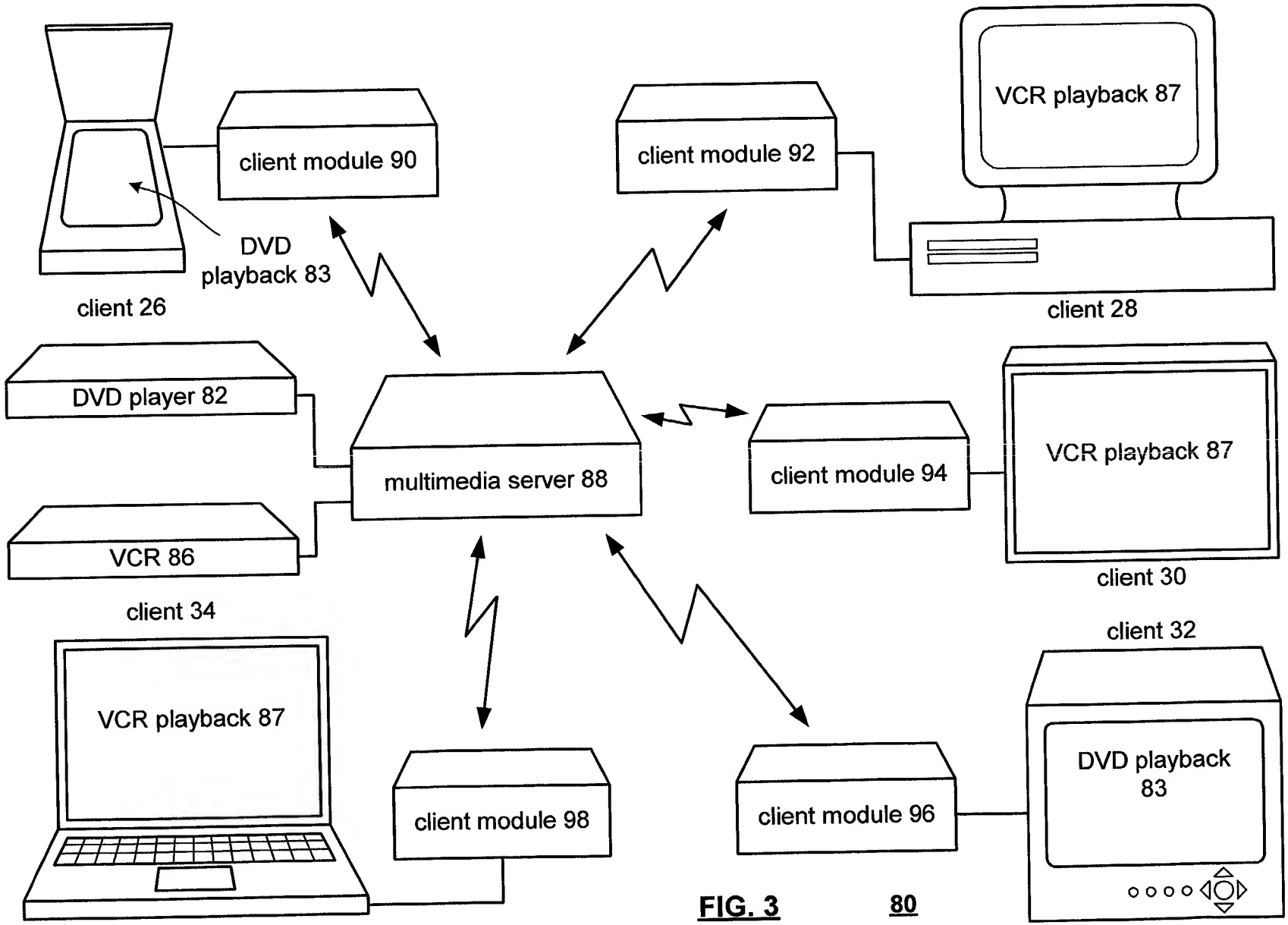


FIG. 3 80

Tomeso' Exhibit

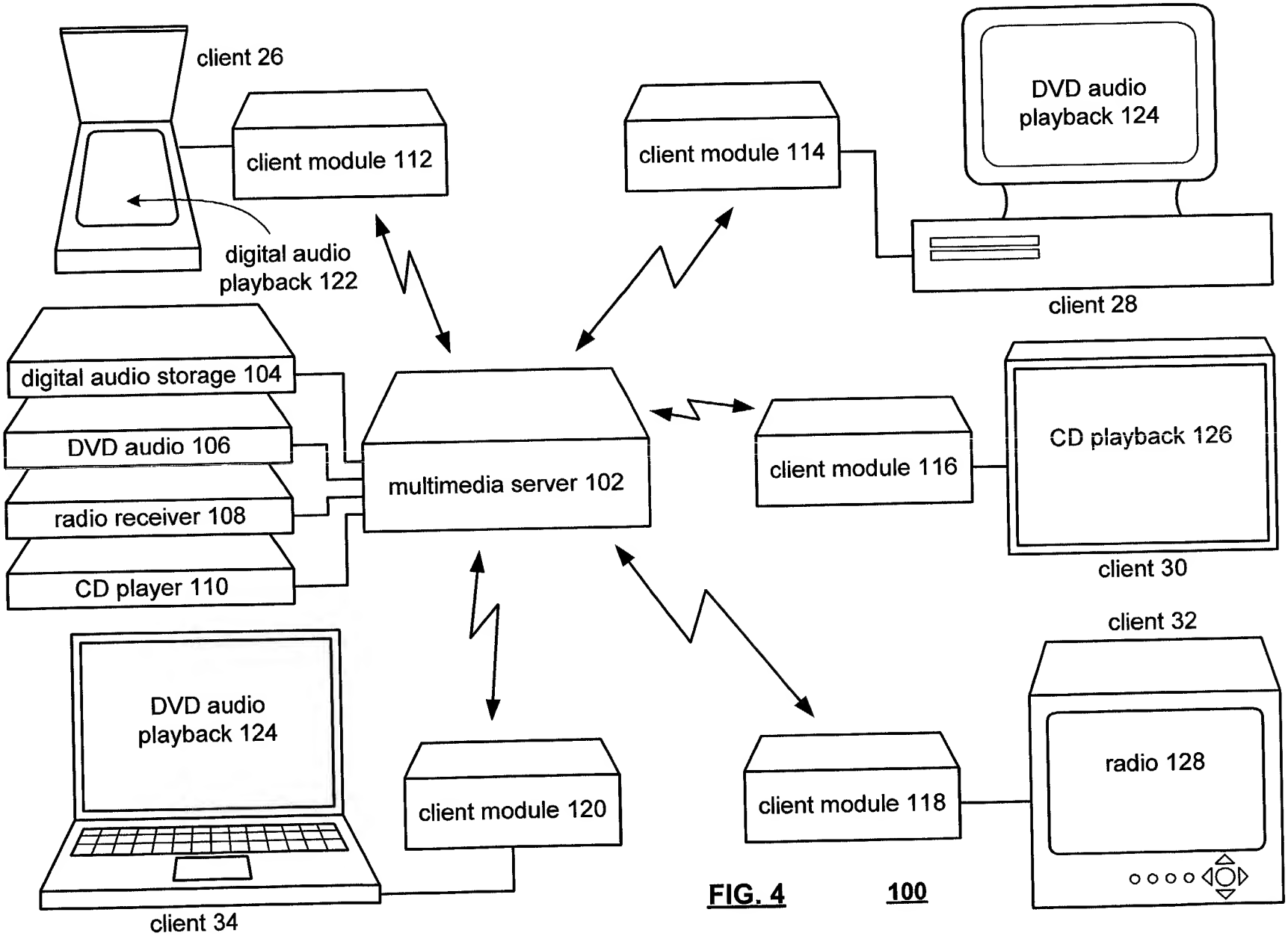


FIG. 4

TOMZSO" E0Z6986O

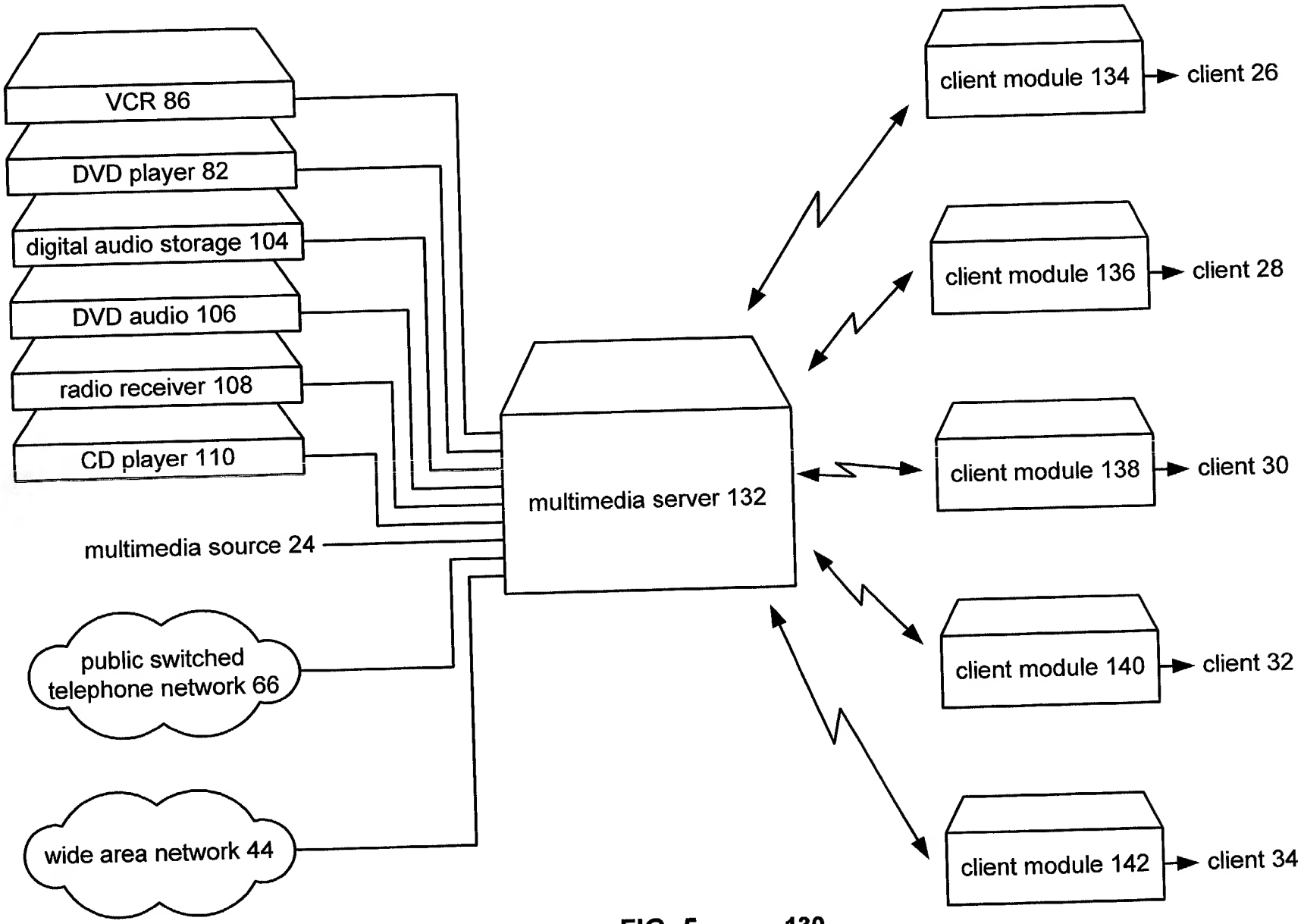


FIG. 5 130

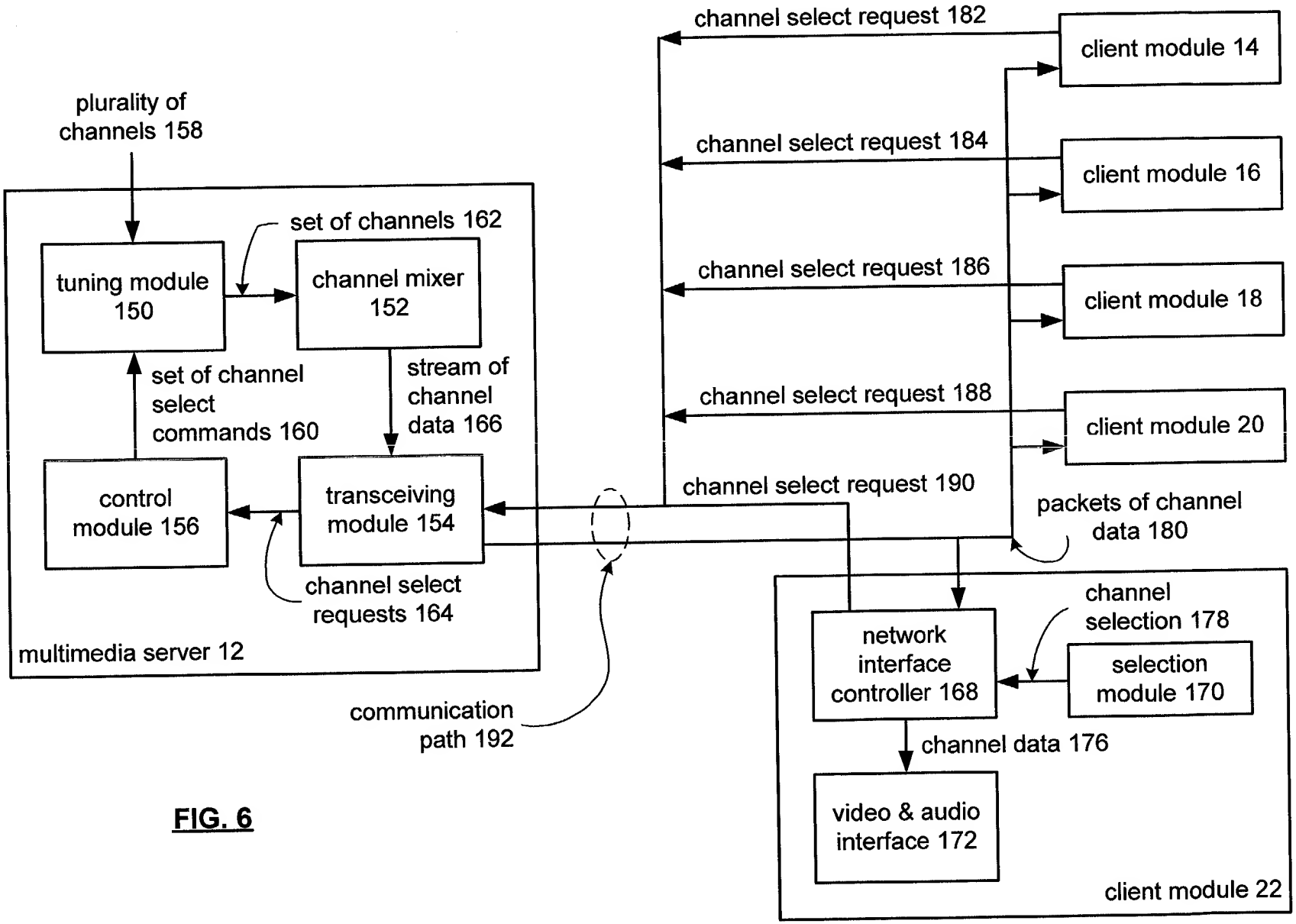

channel select request 182
client module 14
plurality of channels 158
channel select request 184
client module 16
set of channels 162
tuning module 150
channel mixer 152
channel select request 186
client module 18
stream of channel data 166
set of channel select commands 160
channel select request 188
client module 20
control module 156
transceiving module 154
channel select request 190
packets of channel data 180
channel select requests 164
multimedia server 12
channel selection 178
network interface controller 168
selection module 170
communication path 192
channel data 176
video & audio interface 172
client module 22

FIG. 6

TOP230 "EDITION"

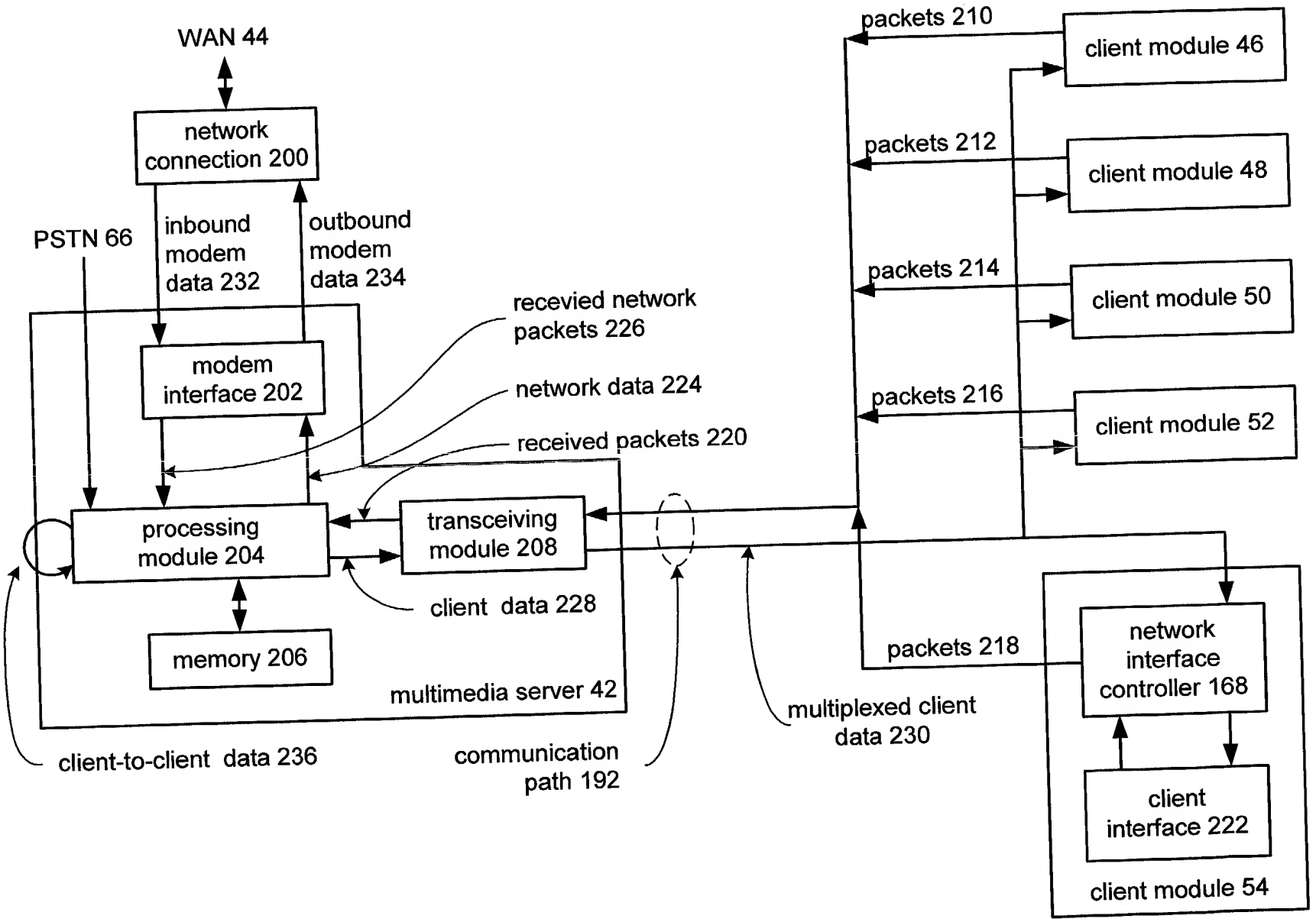


FIG. 7

Tuesday, 28 September

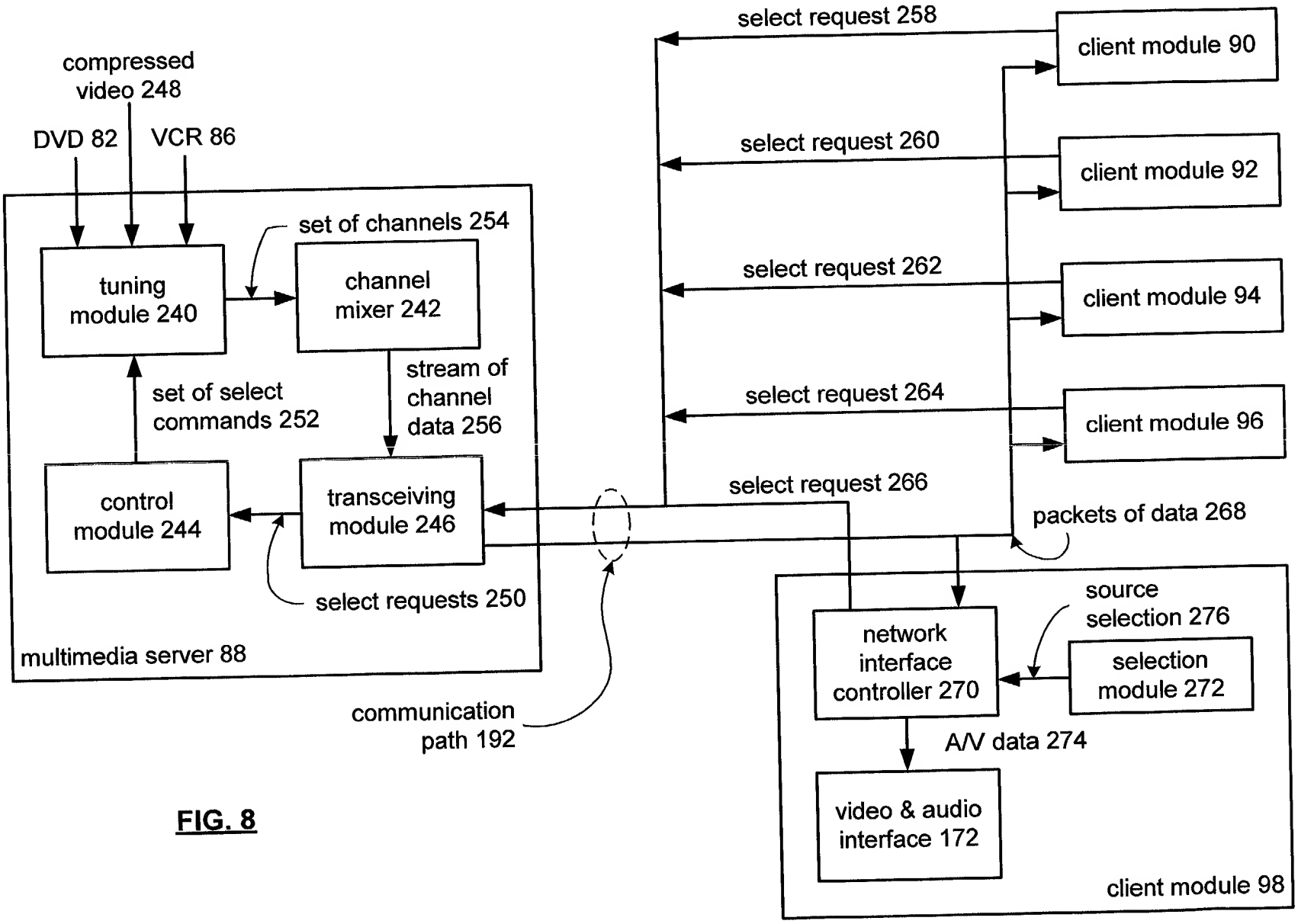


FIG. 8

TOTE30 E021998

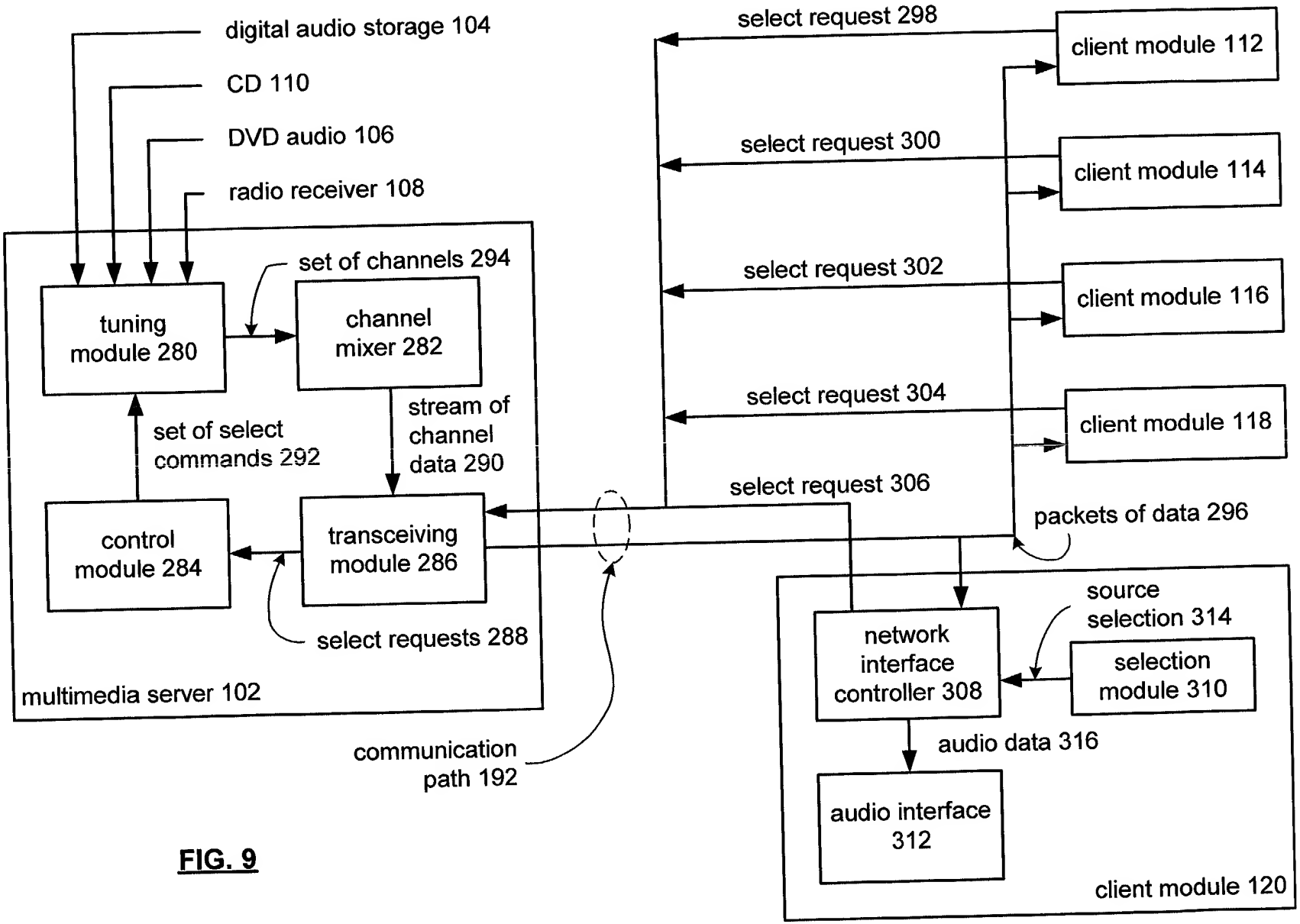


FIG. 9

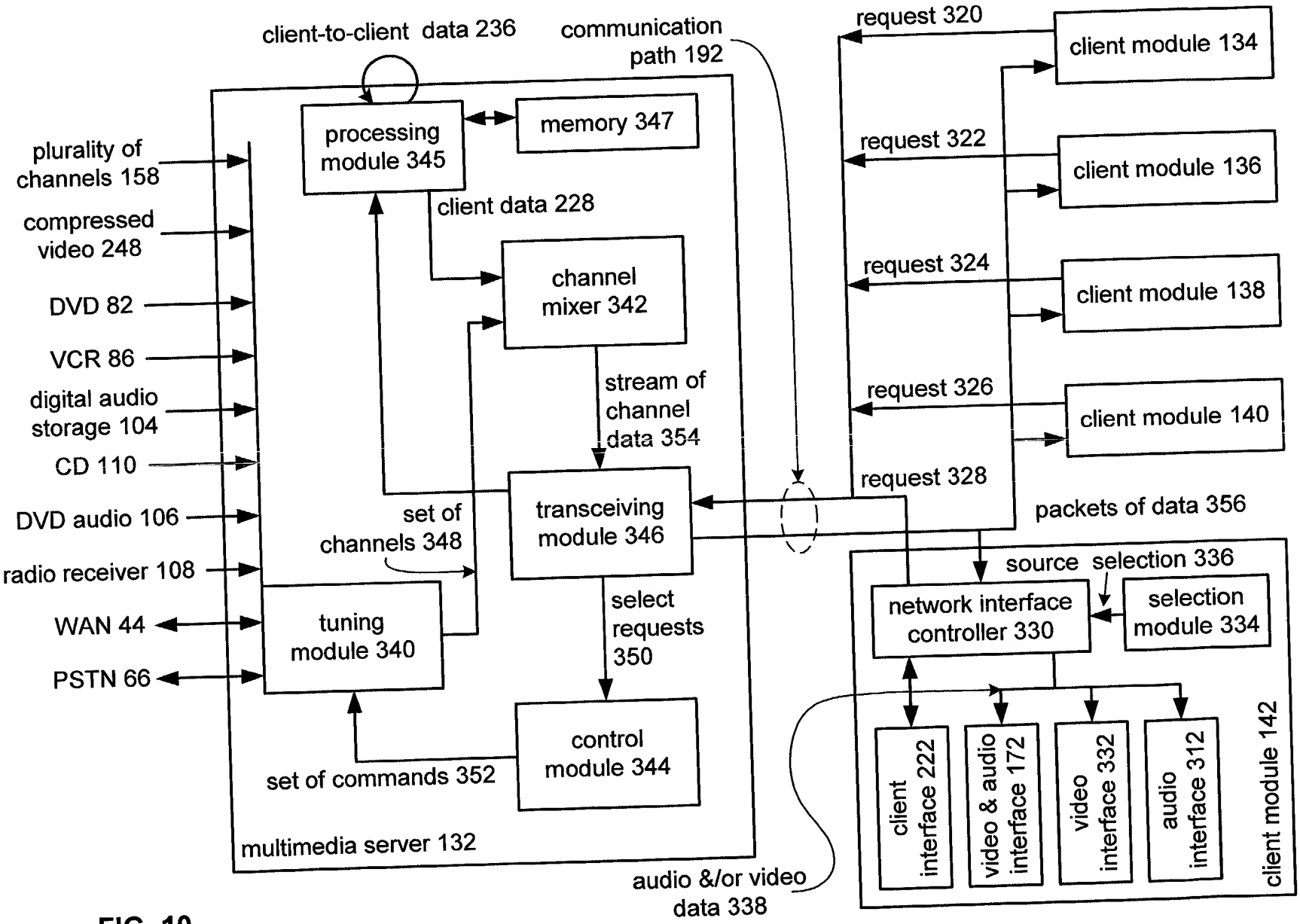

client-to-client data 236
communication path 192
request 320
client module 134
request 322
client module 136
request 324
client module 138
request 326
client module 140
request 328
packets of data 356
processing module 345
memory 347
client data 228
channel mixer 342
stream of channel data 354
transceiving module 346
set of channels 348
tuning module 340
select requests 350
control module 344
set of commands 352
multimedia server 132
plurality of channels 158
compressed video 248
DVD 82
VCR 86
digital audio storage 104
CD 110
DVD audio 106
radio receiver 108
WAN 44
PSTN 66
audio &/or video data 338
source selection 336
network interface controller 330
selection module 334
client interface 222
video & audio interface 172
video interface 332
audio interface 312
client module 142

FIG. 10

Tonesoft exhibit

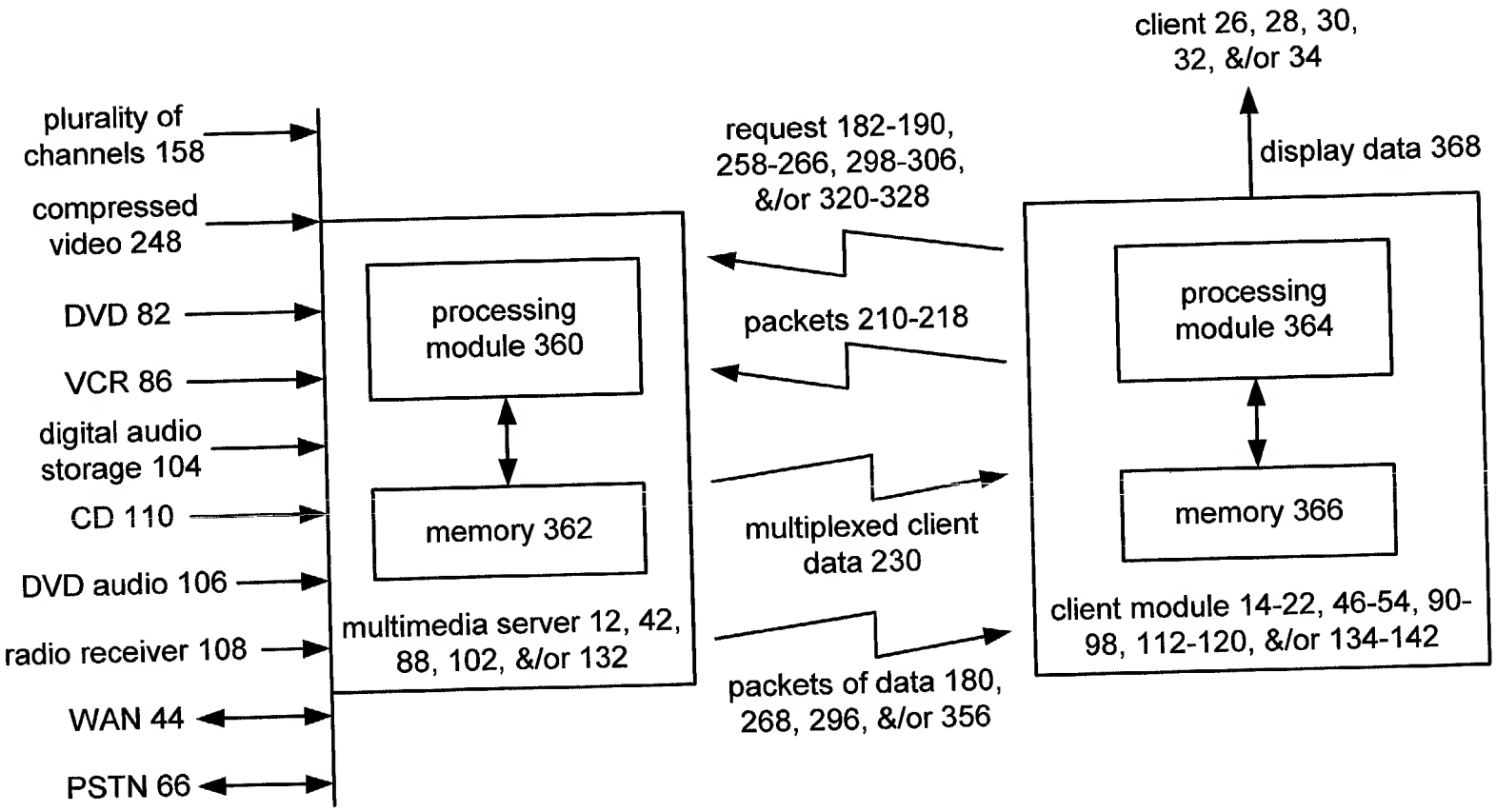


FIG. 11

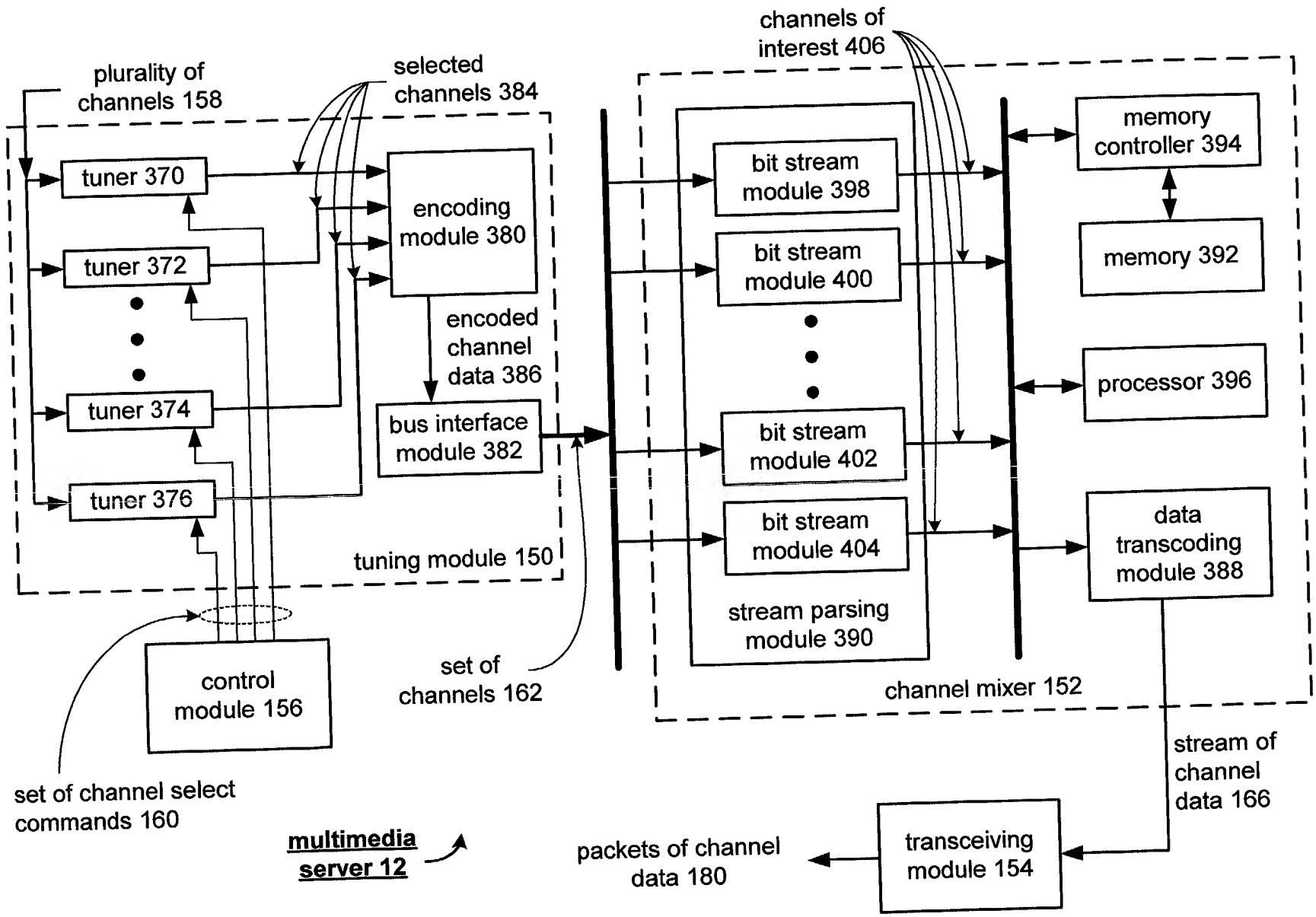

channels of interest 406
plurality of channels 158
selected channels 384
tuner 370
tuner 372
tuner 374
tuner 376
encoding module 380
encoded channel data 386
bus interface module 382
tuning module 150
control module 156
set of channels 162
set of channel select commands 160
bit stream module 398
bit stream module 400
bit stream module 402
bit stream module 404
stream parsing module 390
channel mixer 152
memory controller 394
memory 392
processor 396
data transcoding module 388
stream of channel data 166
transceiving module 154
packets of channel data 180
multimedia server 12

FIG. 12

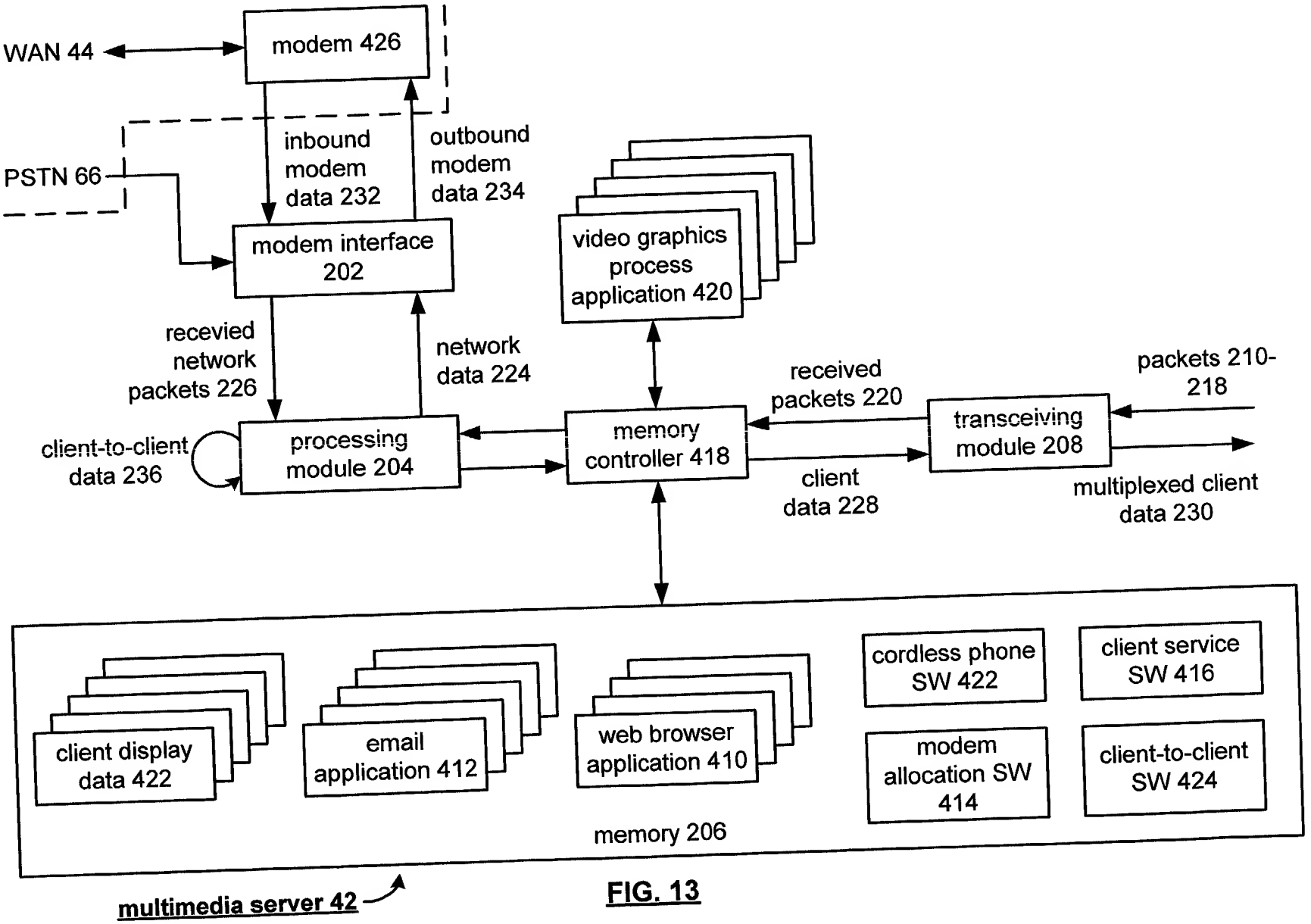

WAN 44
modem 426
PSTN 66
inbound modem data 232
outbound modem data 234
modem interface 202
video graphics process application 420
recevied network packets 226
network data 224
client-to-client data 236
processing module 204
memory controller 418
received packets 220
transceiving module 208
packets 210-218
client data 228
multiplexed client data 230
client display data 422
email application 412
web browser application 410
cordless phone SW 422
client service SW 416
modem allocation SW 414
client-to-client SW 424
memory 206
multimedia server 42

FIG. 13

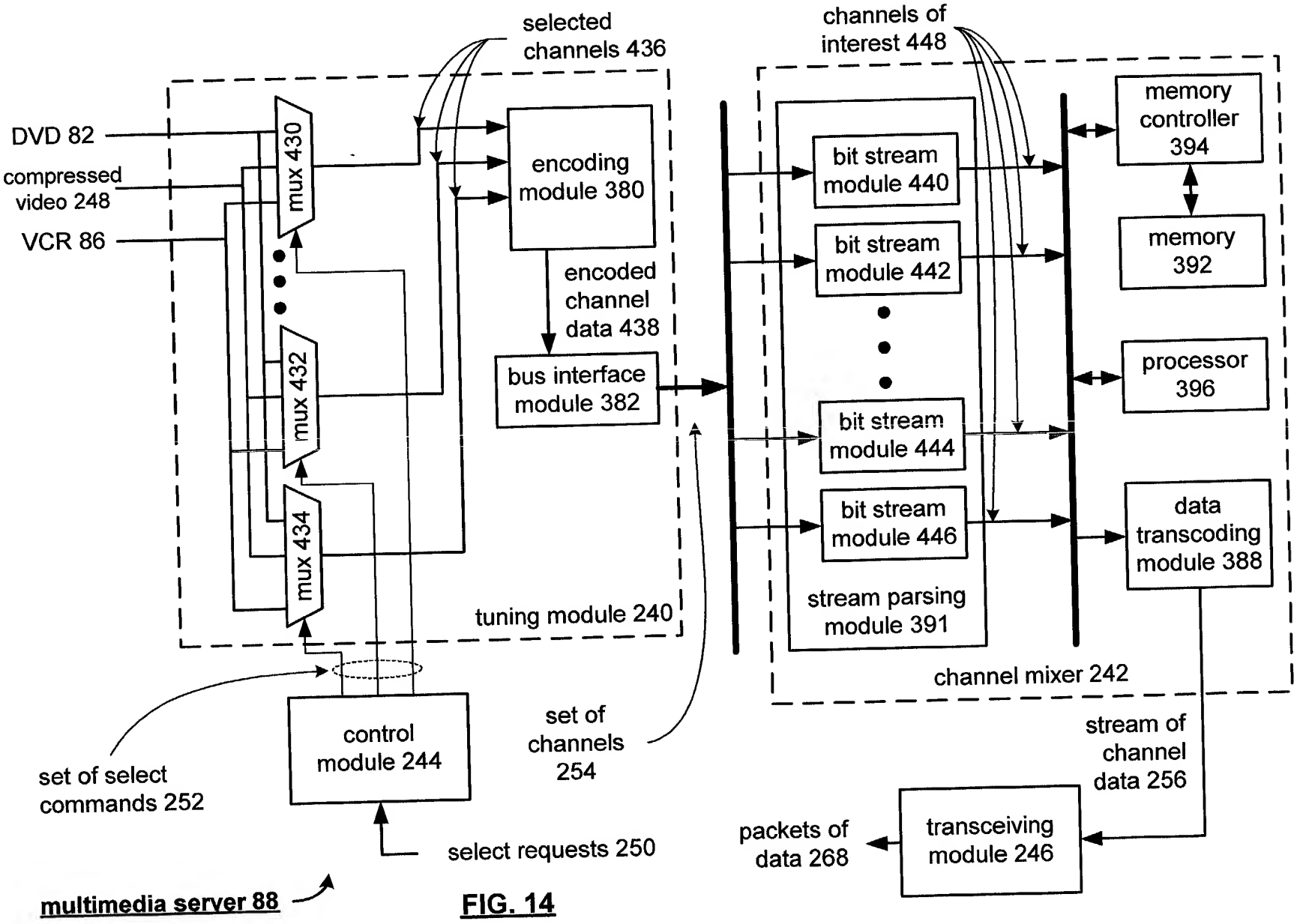

selected channels 436
channels of interest 448
DVD 82
compressed video 248
VCR 86
mux 430
mux 432
mux 434
encoding module 380
encoded channel data 438
bus interface module 382
tuning module 240
bit stream module 440
bit stream module 442
bit stream module 444
bit stream module 446
stream parsing module 391
channel mixer 242
memory controller 394
memory 392
processor 396
data transcoding module 388
stream of channel data 256
transceiving module 246
packets of data 268
control module 244
set of select commands 252
set of channels 254
select requests 250
multimedia server 88

FIG. 14

Tomeso Exhibit

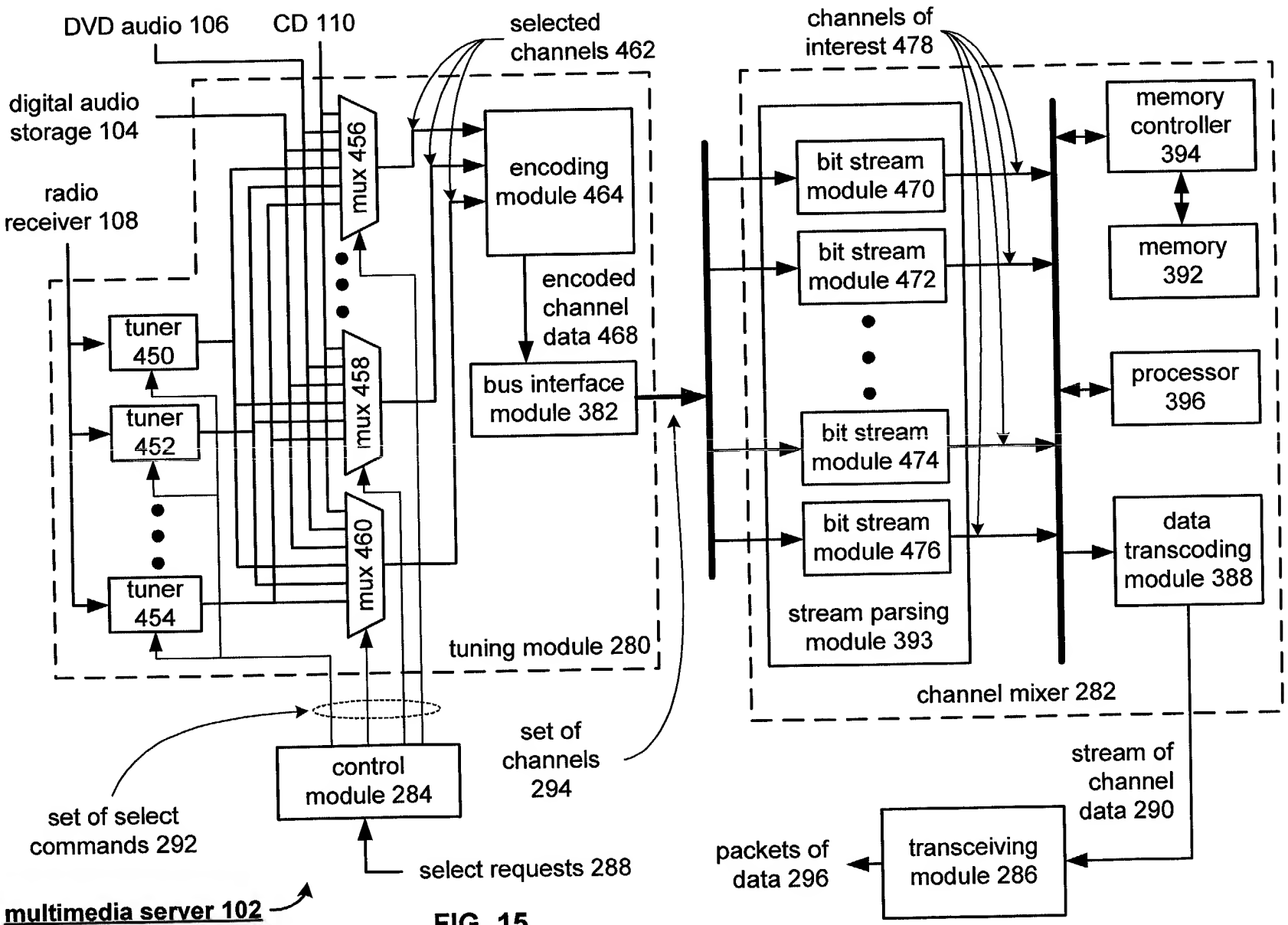


FIG. 15

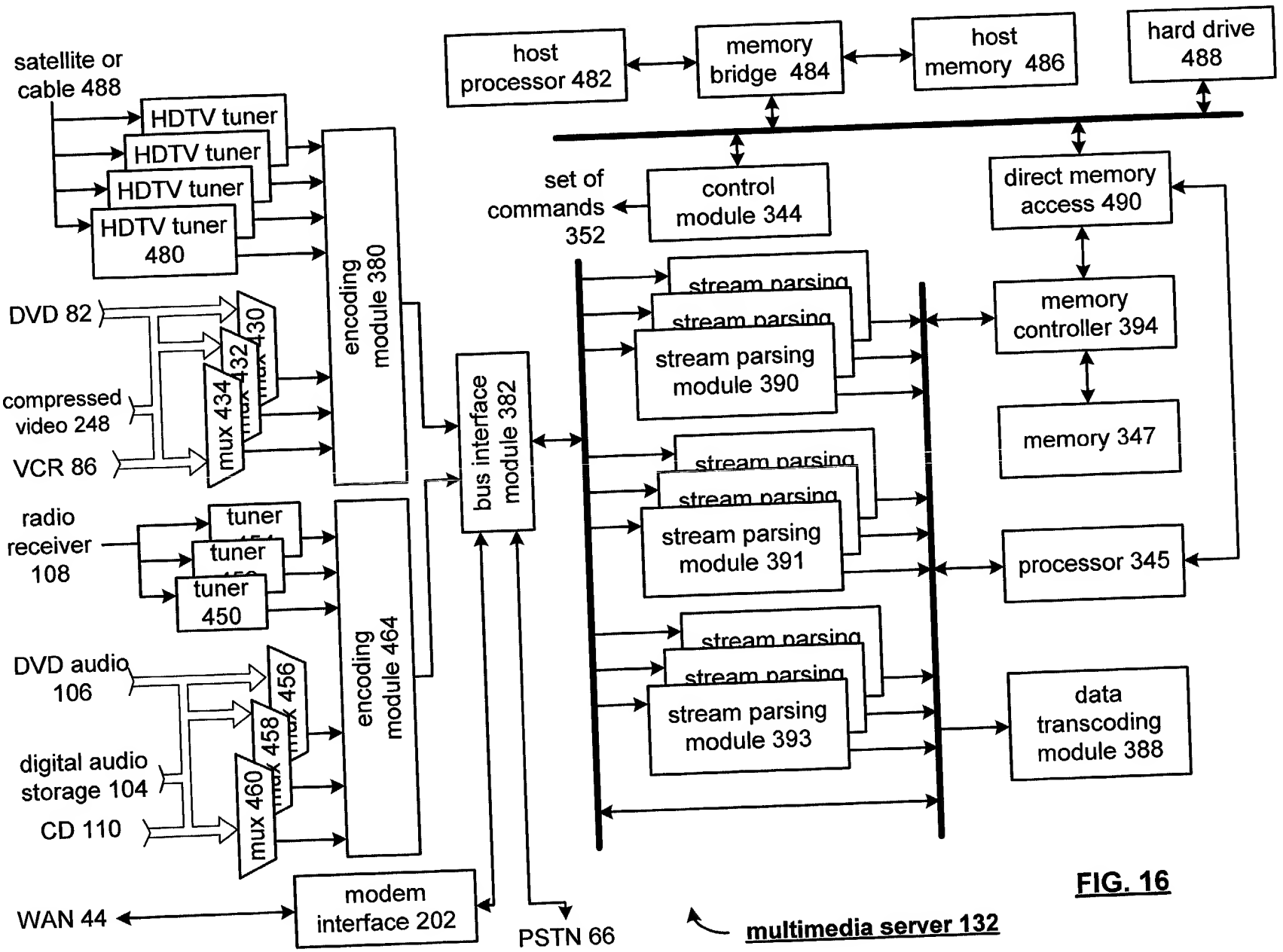

satellite or cable 488
HDTV tuner
HDTV tuner
HDTV tuner
HDTV tuner 480
DVD 82
compressed video 248
VCR 86
mux 430
mux 432
mux 434
encoding module 380
radio receiver 108
tuner
tuner
tuner 450
DVD audio 106
digital audio storage 104
CD 110
mux 456
mux 458
mux 460
encoding module 464
WAN 44
modem interface 202
PSTN 66
bus interface module 382
host processor 482
memory bridge 484
host memory 486
hard drive 488
set of commands 352
control module 344
direct memory access 490
memory controller 394
memory 347
processor 345
data transcoding module 388
stream parsing
stream parsing
stream parsing module 390
stream parsing
stream parsing
stream parsing module 391
stream parsing
stream parsing
stream parsing module 393
multimedia server 132

FIG. 16

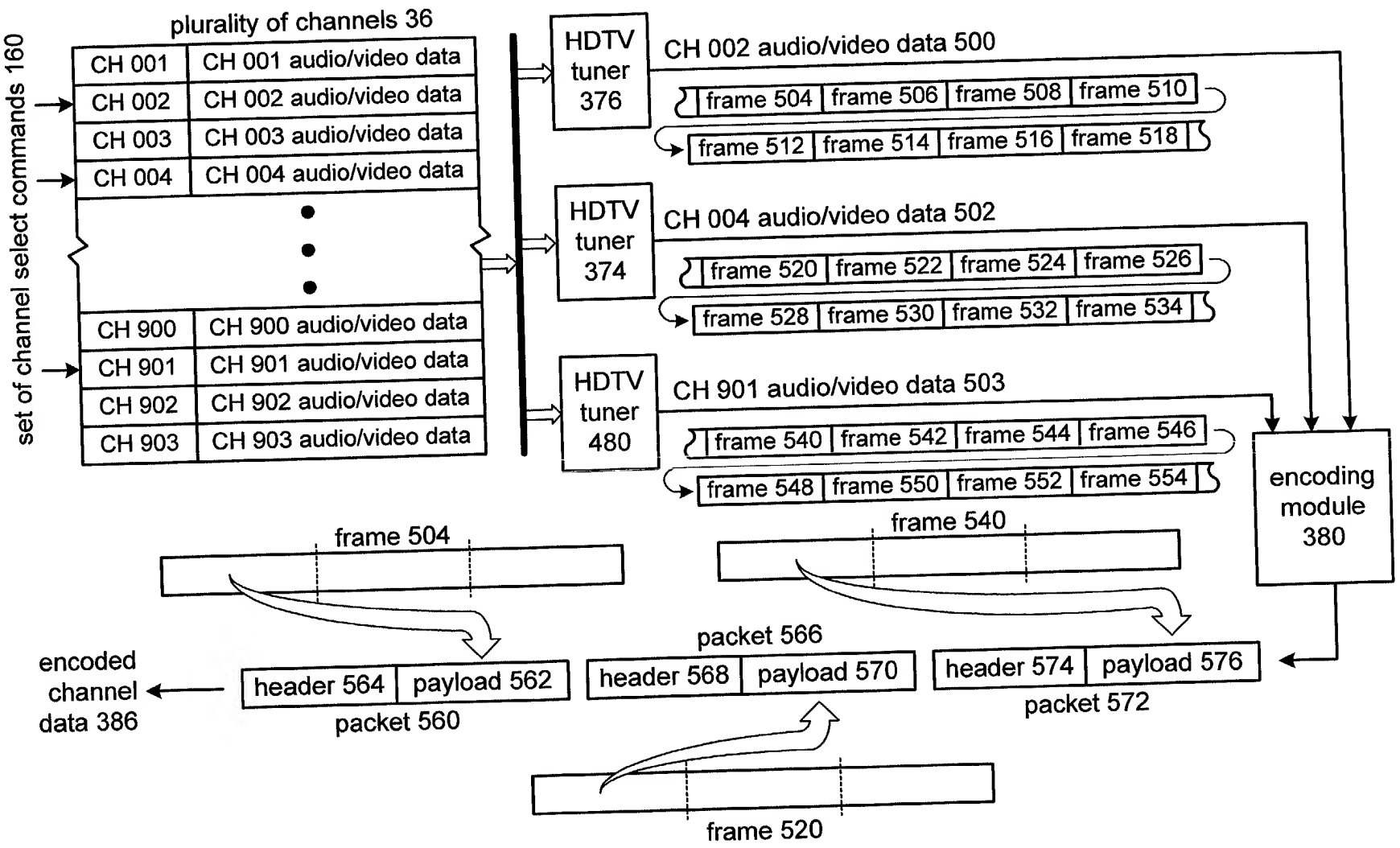

plurality of channels 36
set of channel select commands 160
CH 001
CH 001 audio/video data
CH 002
CH 002 audio/video data
CH 003
CH 003 audio/video data
CH 004
CH 004 audio/video data
CH 900
CH 900 audio/video data
CH 901
CH 901 audio/video data
CH 902
CH 902 audio/video data
CH 903
CH 903 audio/video data
HDTV tuner 376
HDTV tuner 374
HDTV tuner 480
CH 002 audio/video data 500
frame 504 frame 506 frame 508 frame 510
frame 512 frame 514 frame 516 frame 518
CH 004 audio/video data 502
frame 520 frame 522 frame 524 frame 526
frame 528 frame 530 frame 532 frame 534
CH 901 audio/video data 503
frame 540 frame 542 frame 544 frame 546
frame 548 frame 550 frame 552 frame 554
encoding module 380
frame 504
frame 540
packet 566
encoded channel data 386
header 564 payload 562
packet 560
header 568 payload 570
header 574 payload 576
packet 572
frame 520

FIG. 17

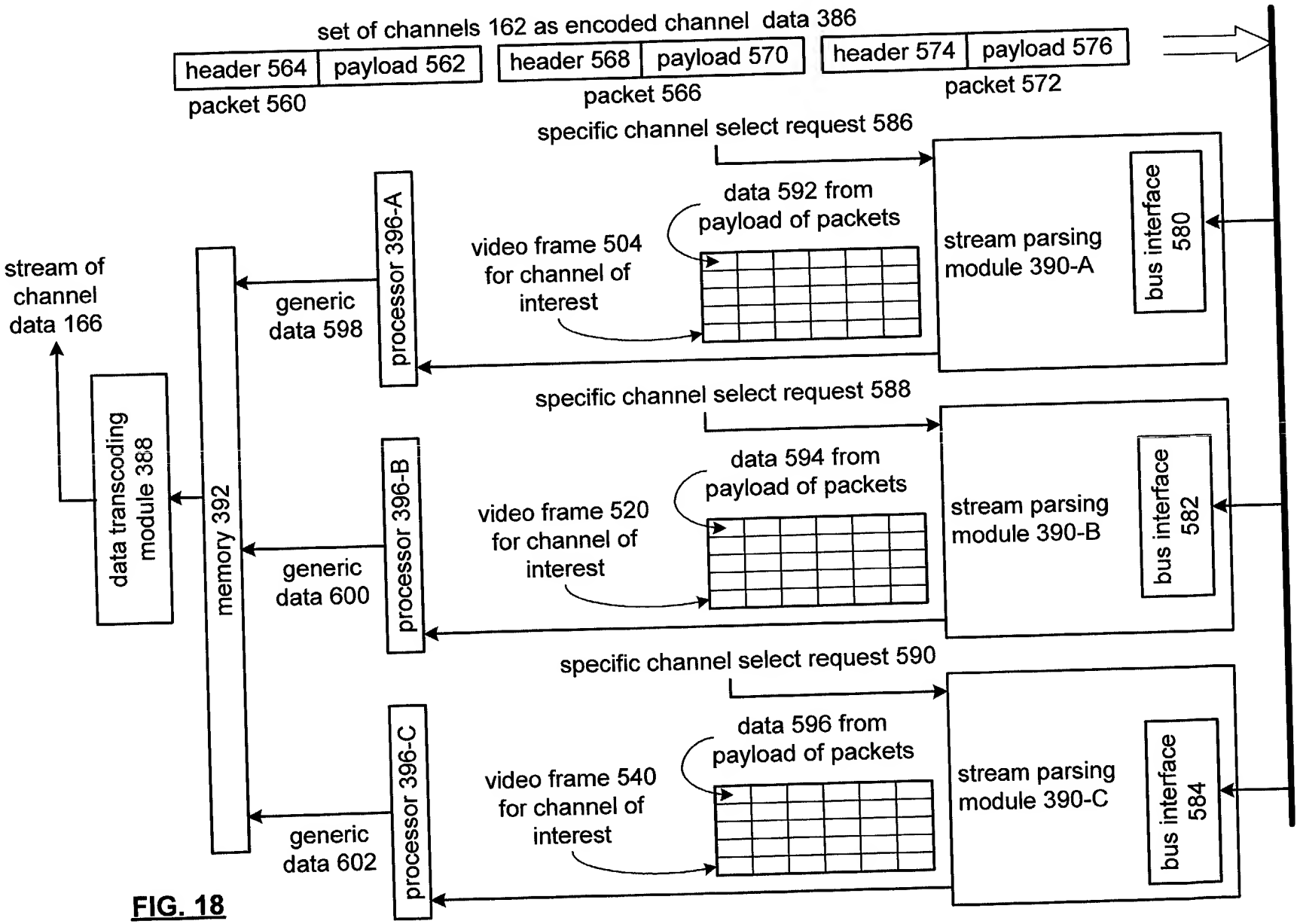

set of channels 162 as encoded channel data 386
header 564
payload 562
packet 560
header 568
payload 570
packet 566
header 574
payload 576
packet 572
specific channel select request 586
data 592 from payload of packets
video frame 504 for channel of interest
stream parsing module 390-A
bus interface 580
processor 396-A
generic data 598
stream of channel data 166
specific channel select request 588
data 594 from payload of packets
video frame 520 for channel of interest
stream parsing module 390-B
bus interface 582
processor 396-B
generic data 600
data transcoding module 388
memory 392
specific channel select request 590
data 596 from payload of packets
video frame 540 for channel of interest
stream parsing module 390-C
bus interface 584
processor 396-C
generic data 602

FIG. 18

Tomeso, exhibit

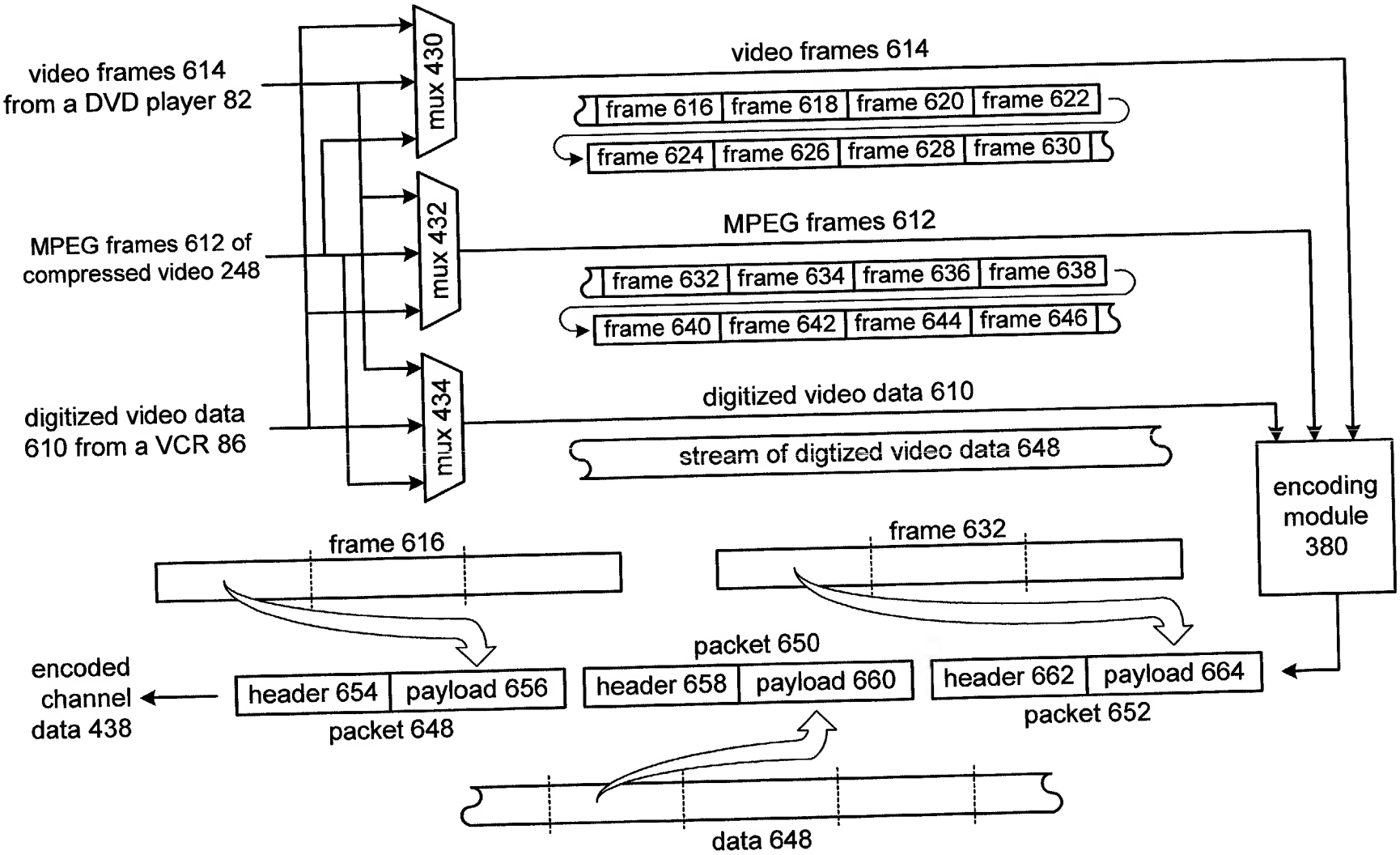


FIG. 19

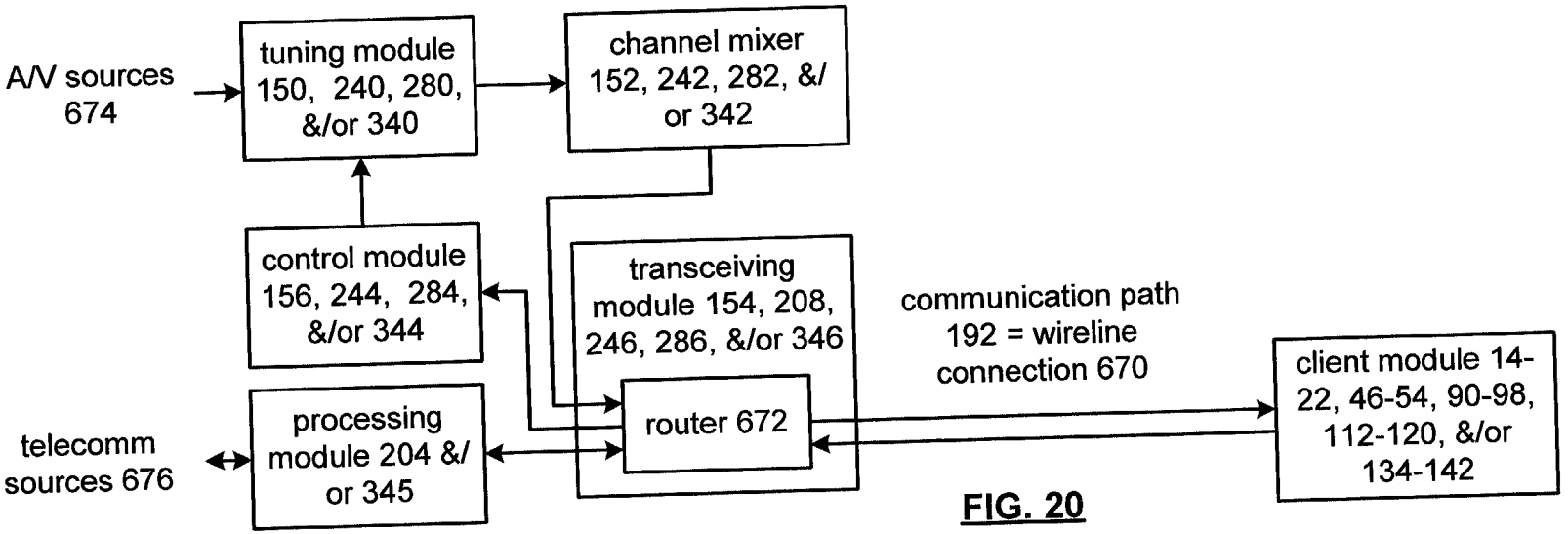

A/V sources 674
tuning module 150, 240, 280, &/or 340
channel mixer 152, 242, 282, &/ or 342
control module 156, 244, 284, &/or 344
transceiving module 154, 208, 246, 286, &/or 346
router 672
communication path 192 = wireline connection 670
client module 14-22, 46-54, 90-98, 112-120, &/or 134-142
telecomm sources 676
processing module 204 &/ or 345

FIG. 20

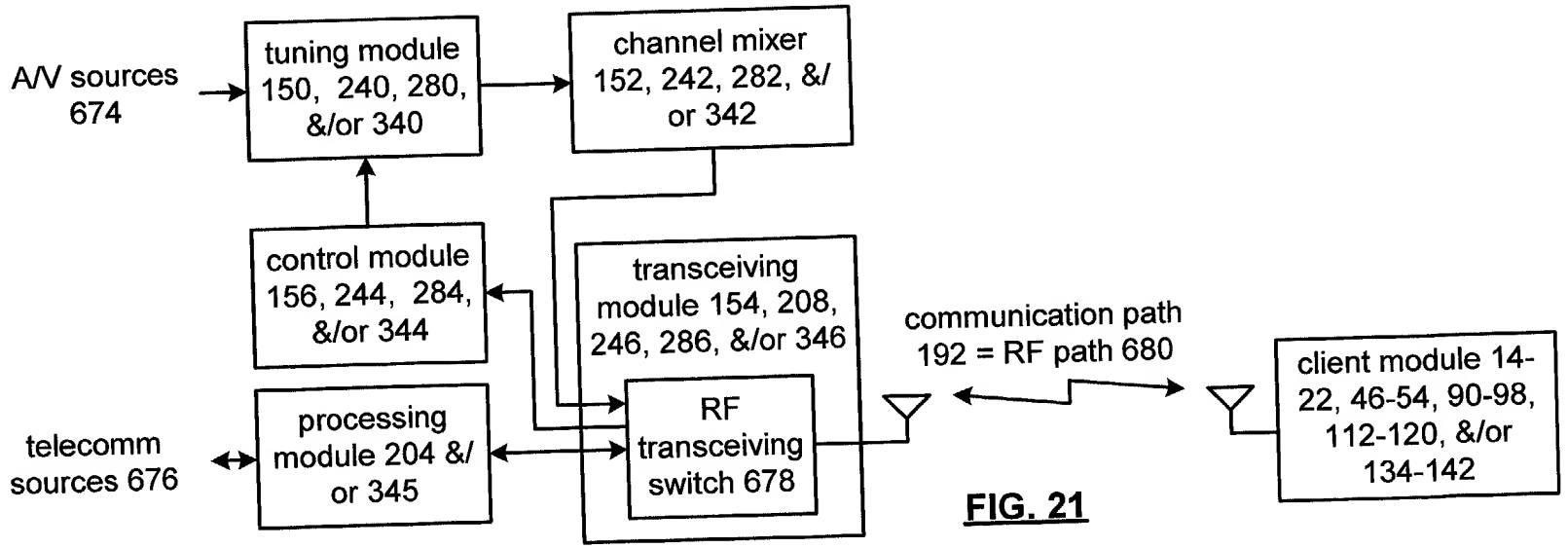

A/V sources 674
tuning module 150, 240, 280, &/or 340
channel mixer 152, 242, 282, &/ or 342
control module 156, 244, 284, &/or 344
transceiving module 154, 208, 246, 286, &/or 346
RF transceiving switch 678
communication path 192 = RF path 680
client module 14-22, 46-54, 90-98, 112-120, &/or 134-142
telecomm sources 676
processing module 204 &/ or 345

FIG. 21

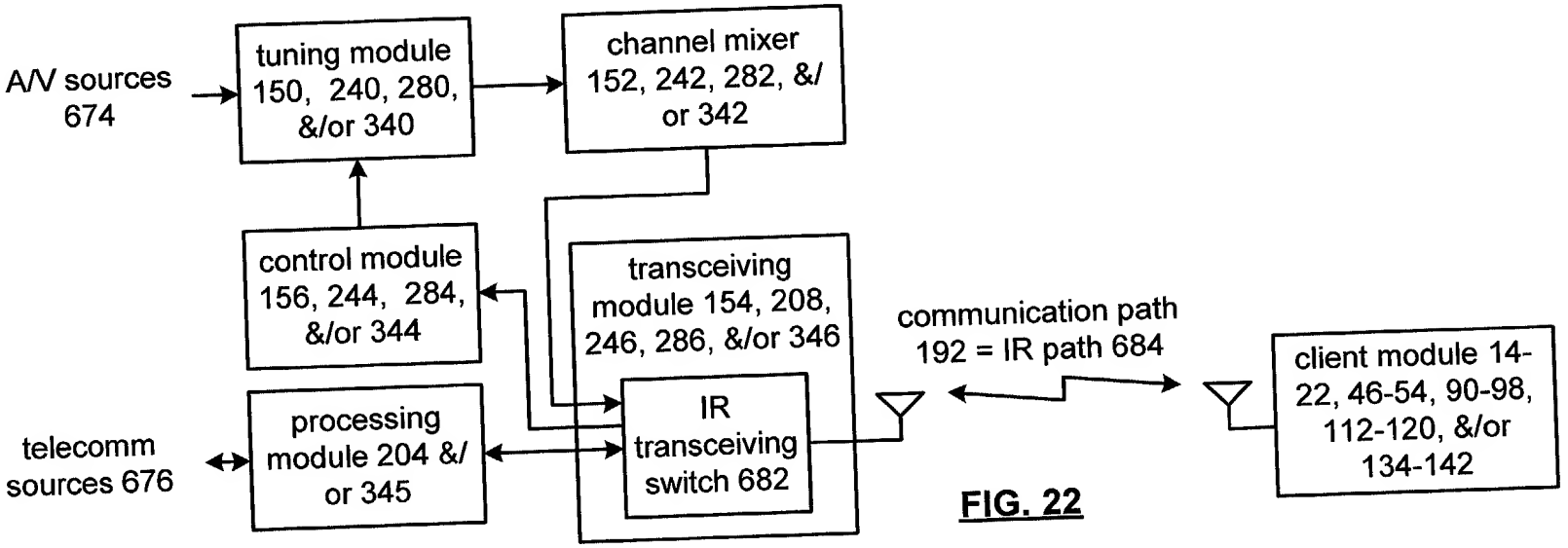

A/V sources 674
tuning module 150, 240, 280, &/or 340
channel mixer 152, 242, 282, &/ or 342
control module 156, 244, 284, &/or 344
transceiving module 154, 208, 246, 286, &/or 346
communication path 192 = IR path 684
client module 14-22, 46-54, 90-98, 112-120, &/or 134-142
telecomm sources 676
processing module 204 &/ or 345
IR transceiving switch 682

FIG. 22

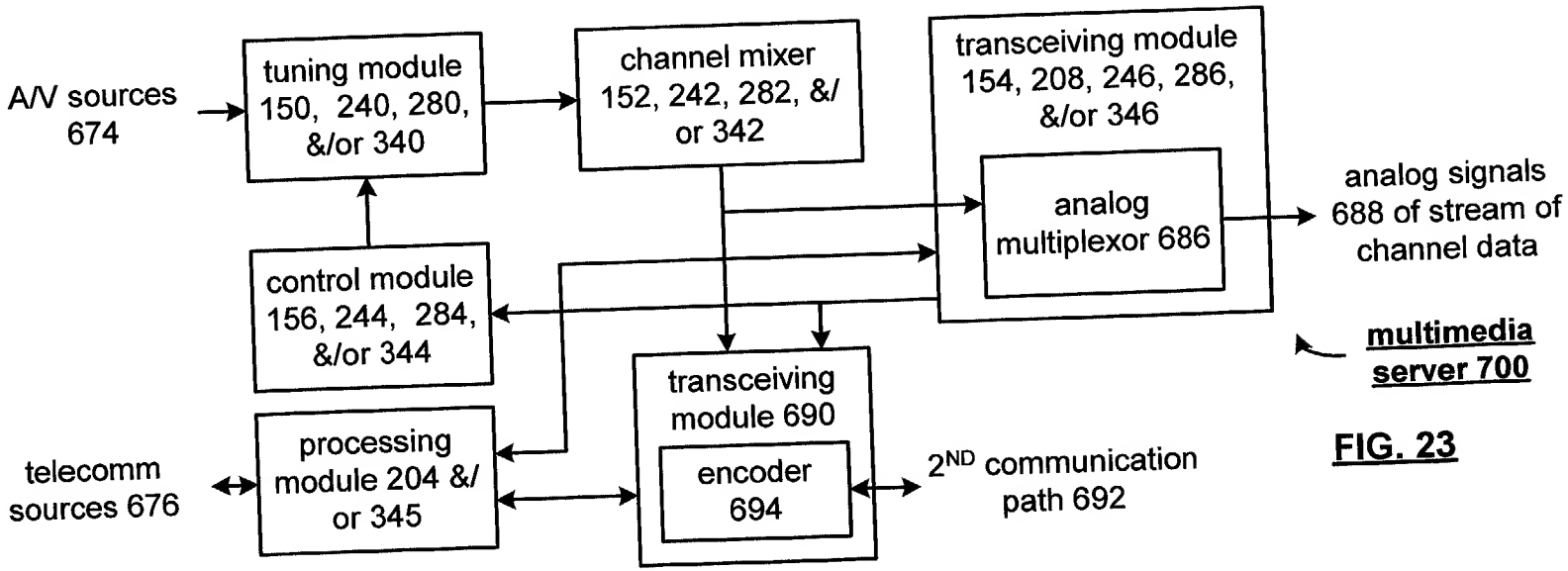

A/V sources 674
tuning module 150, 240, 280, &/or 340
channel mixer 152, 242, 282, &/ or 342
transceiving module 154, 208, 246, 286, &/or 346
analog multiplexor 686
analog signals 688 of stream of channel data
multimedia server 700
control module 156, 244, 284, &/or 344
transceiving module 690
encoder 694
telecomm sources 676
processing module 204 &/ or 345
2ND communication path 692

FIG. 23

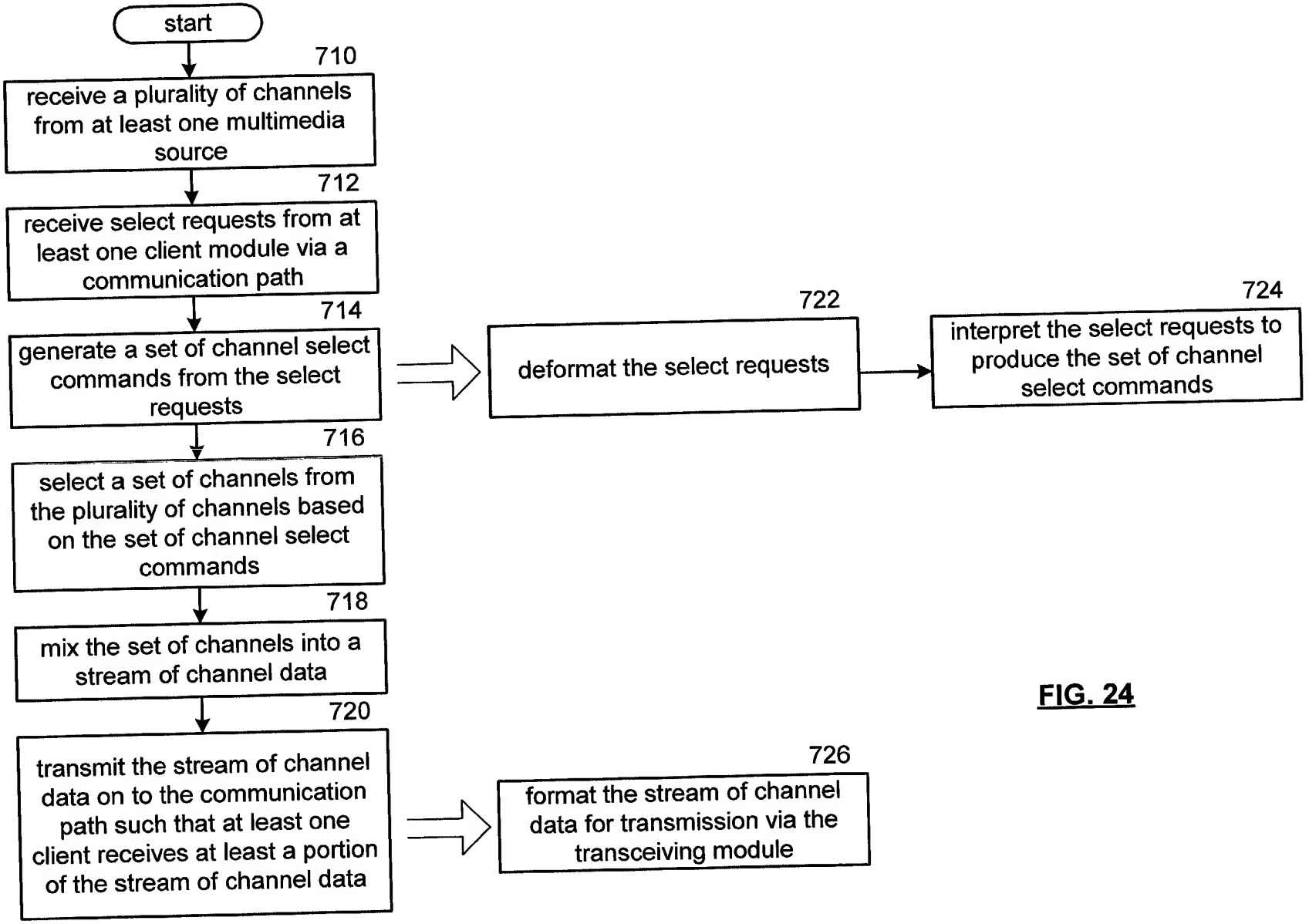

start
710
receive a plurality of channels from at least one multimedia source
712
receive select requests from at least one client module via a communication path
714
generate a set of channel select commands from the select requests
722
deformat the select requests
724
interpret the select requests to produce the set of channel select commands
716
select a set of channels from the plurality of channels based on the set of channel select commands
718
mix the set of channels into a stream of channel data
720
transmit the stream of channel data on to the communication path such that at least one client receives at least a portion of the stream of channel data
726
format the stream of channel data for transmission via the transceiving module

FIG. 24

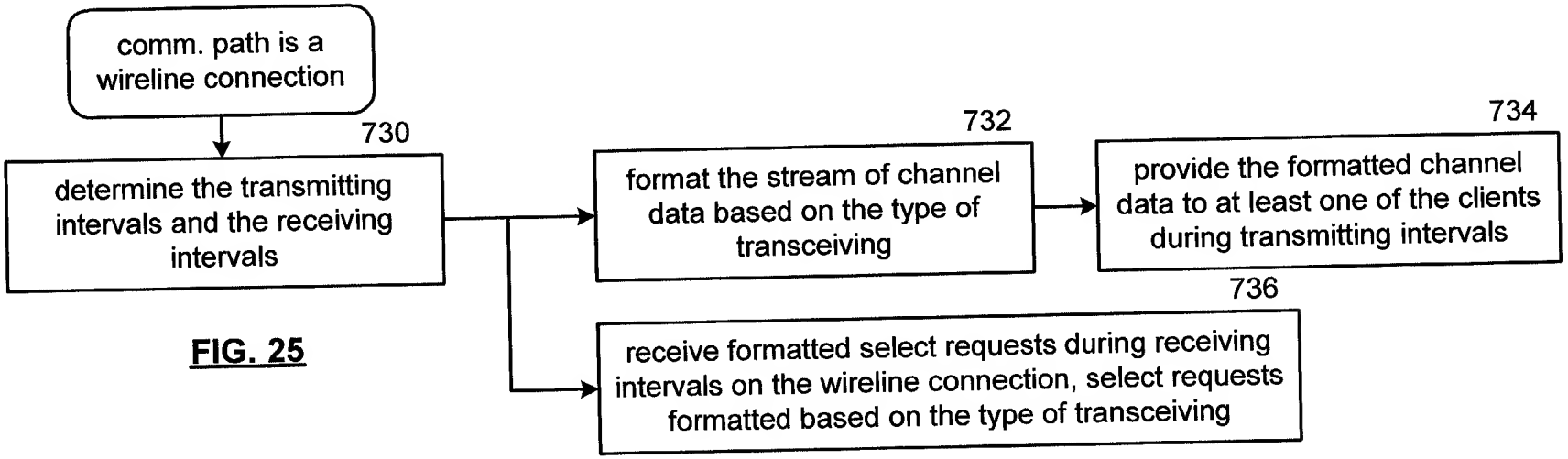

comm. path is a wireline connection
730
determine the transmitting intervals and the receiving intervals
732
format the stream of channel data based on the type of transceiving
734
provide the formatted channel data to at least one of the clients during transmitting intervals
736
receive formatted select requests during receiving intervals on the wireline connection, select requests formatted based on the type of transceiving

FIG. 25

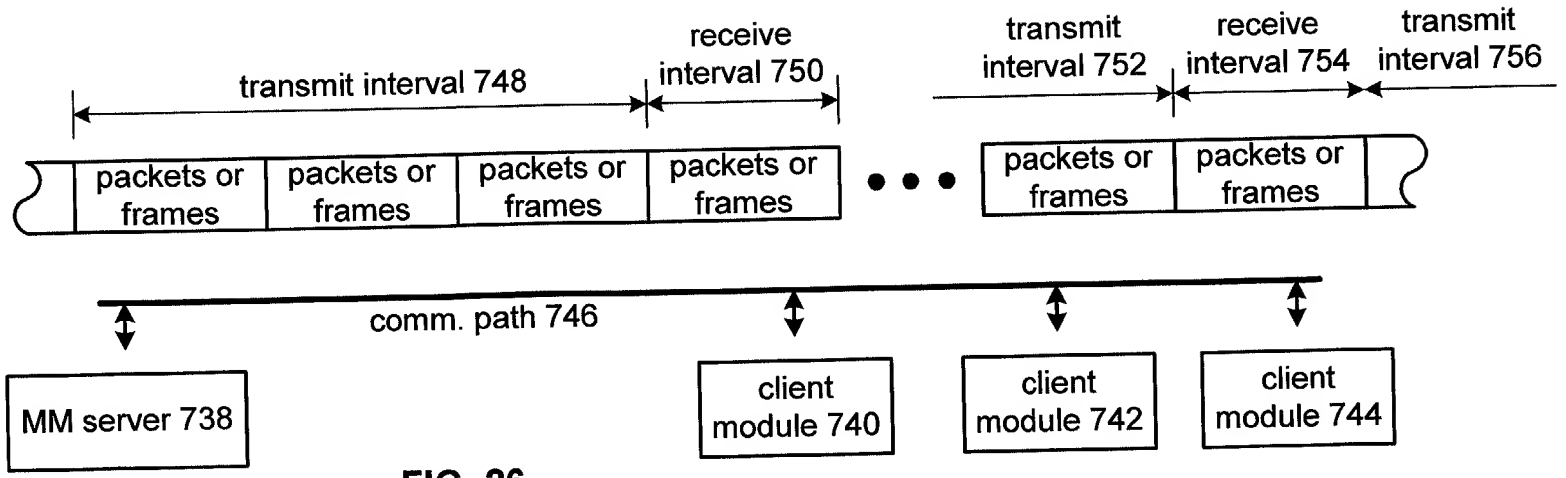

transmit interval 748
receive interval 750
transmit interval 752
receive interval 754
transmit interval 756
packets or frames
packets or frames
packets or frames
packets or frames
packets or frames
packets or frames
comm. path 746
MM server 738
client module 740
client module 742
client module 744

FIG. 26

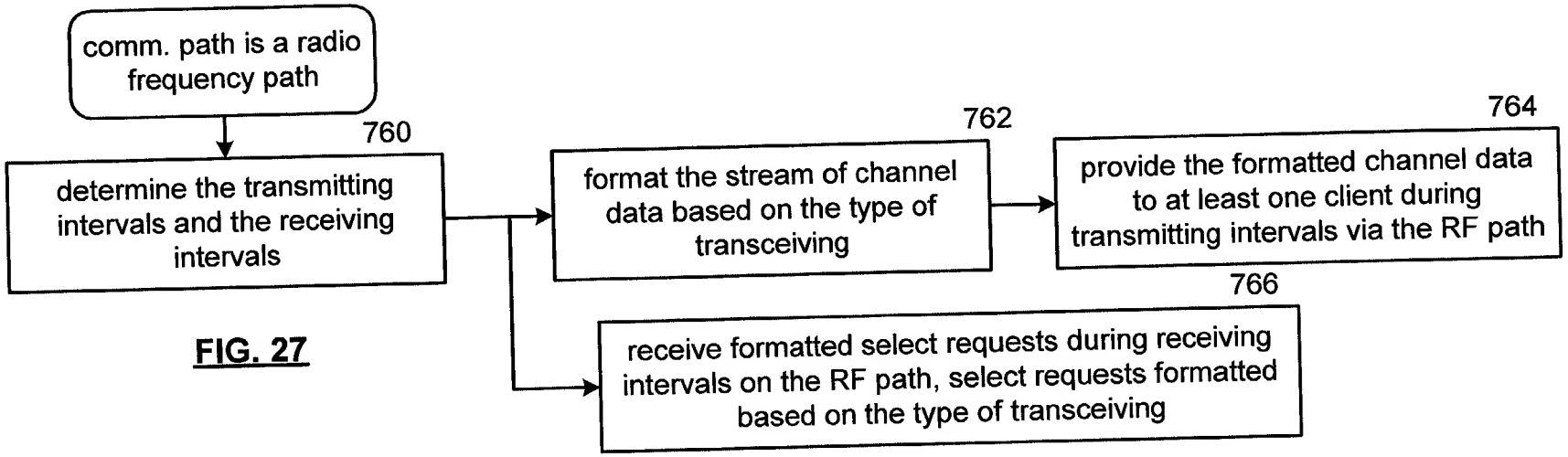

comm. path is a radio frequency path
760
determine the transmitting intervals and the receiving intervals
762
format the stream of channel data based on the type of transceiving
764
provide the formatted channel data to at least one client during transmitting intervals via the RF path
766
receive formatted select requests during receiving intervals on the RF path, select requests formatted based on the type of transceiving

FIG. 27

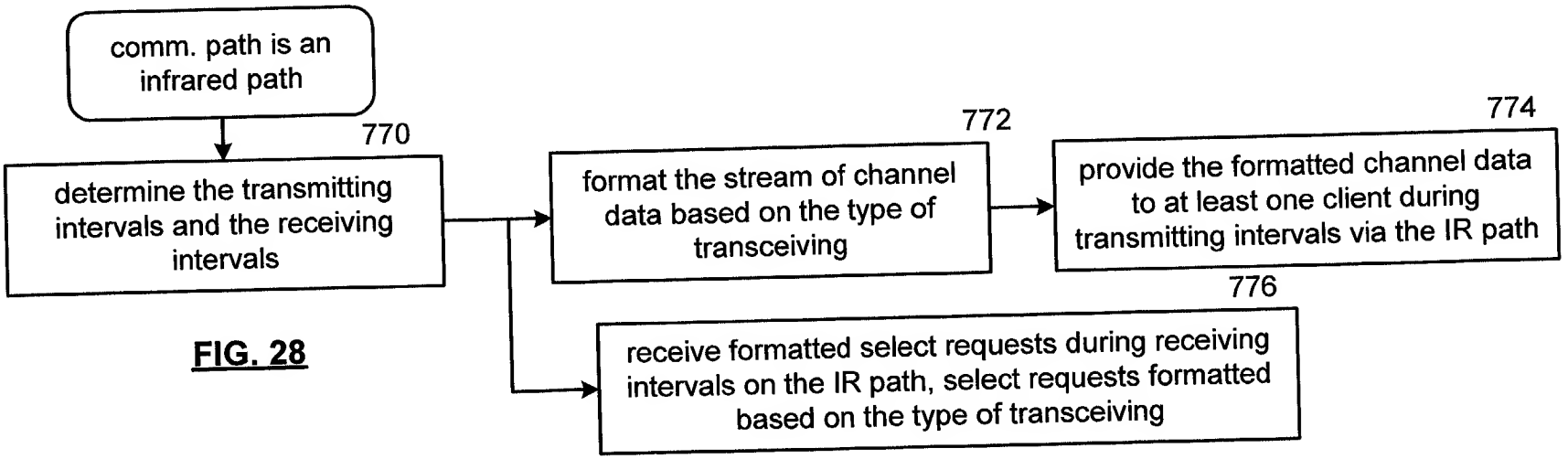

comm. path is an infrared path
770
determine the transmitting intervals and the receiving intervals
772
format the stream of channel data based on the type of transceiving
774
provide the formatted channel data to at least one client during transmitting intervals via the IR path
776
receive formatted select requests during receiving intervals on the IR path, select requests formatted based on the type of transceiving

FIG. 28

FOREIGN PATENT

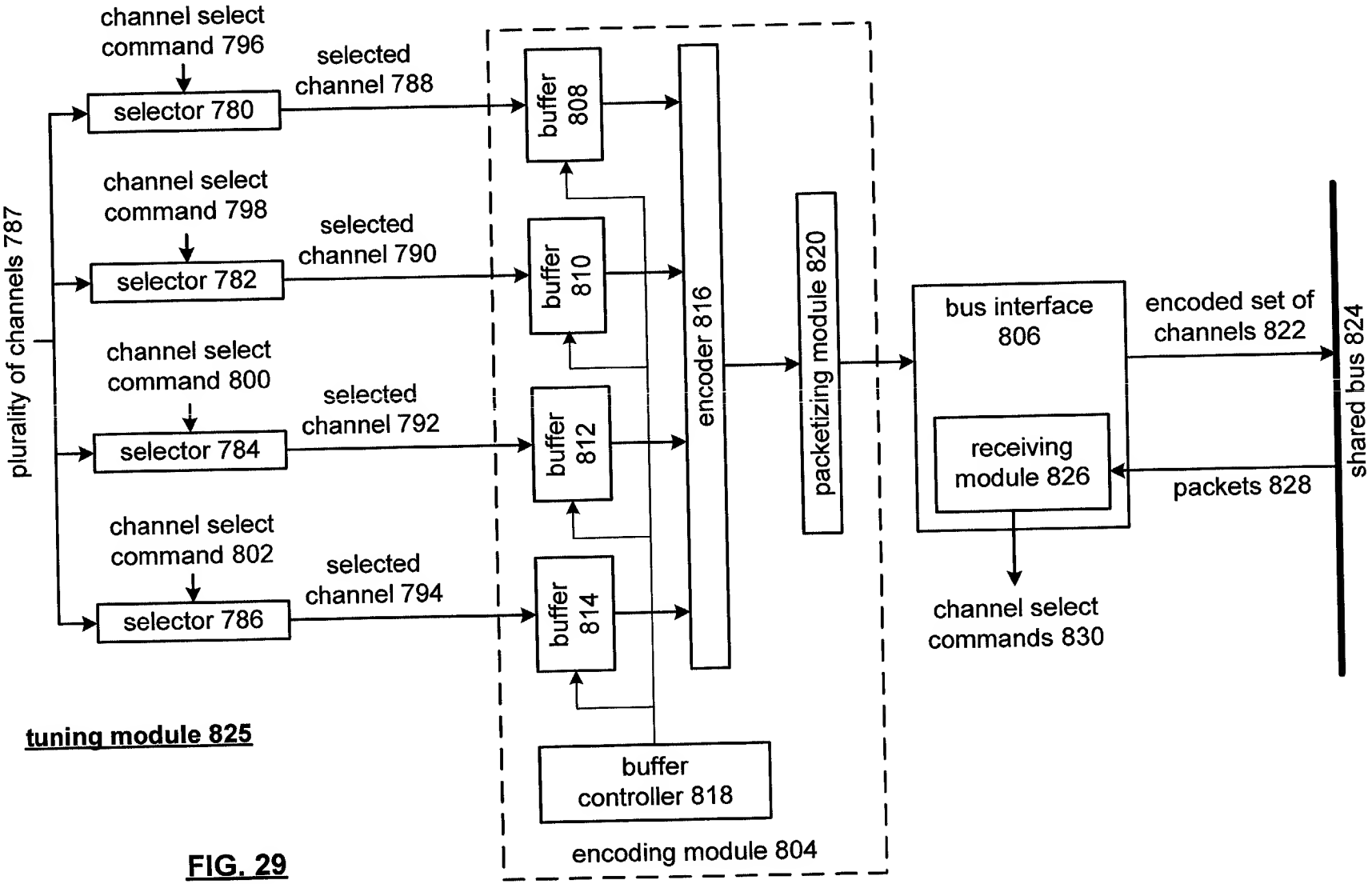


FIG. 29

TOMTOM 2218960

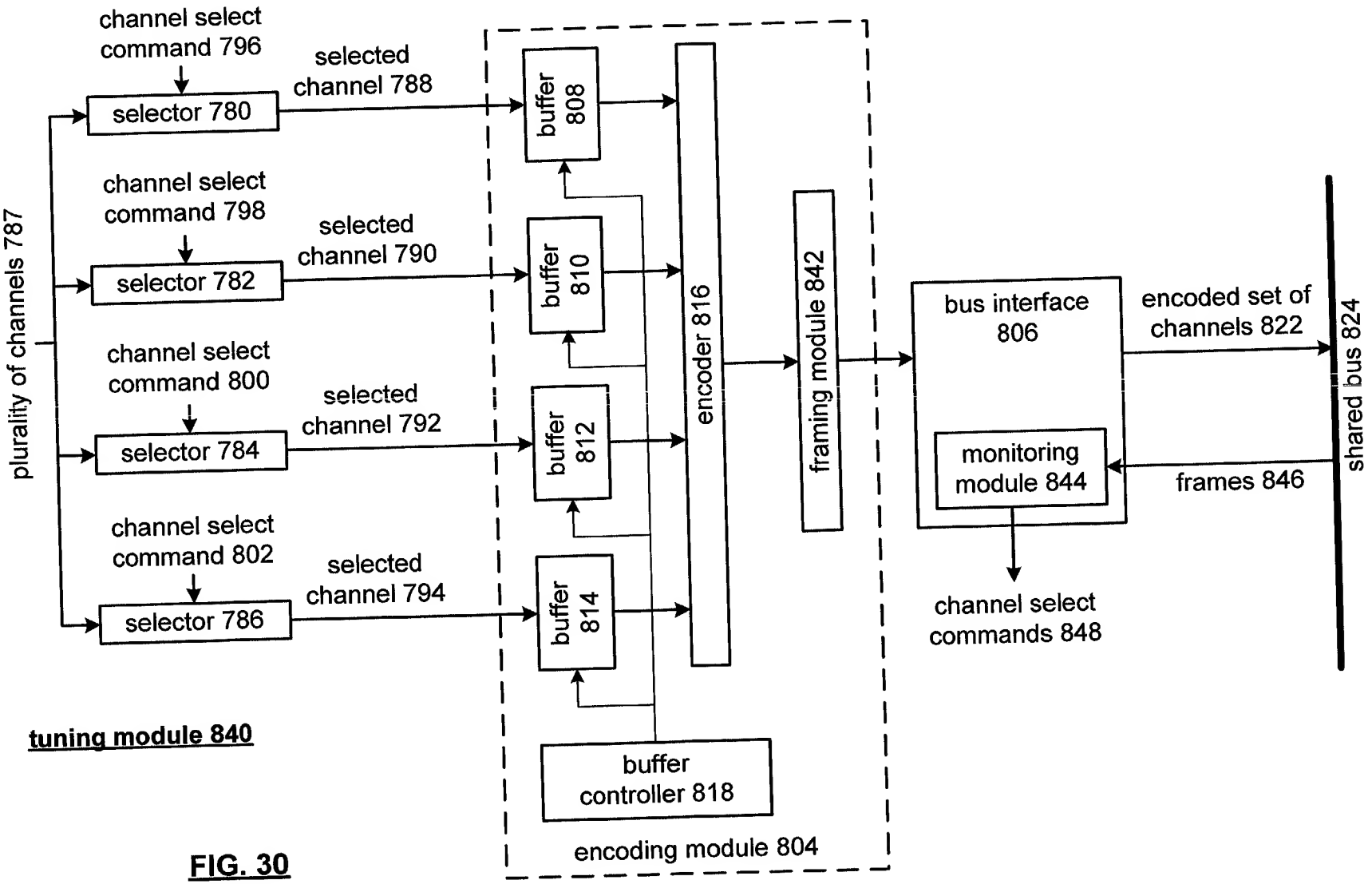


FIG. 30

Tan250 C8276868

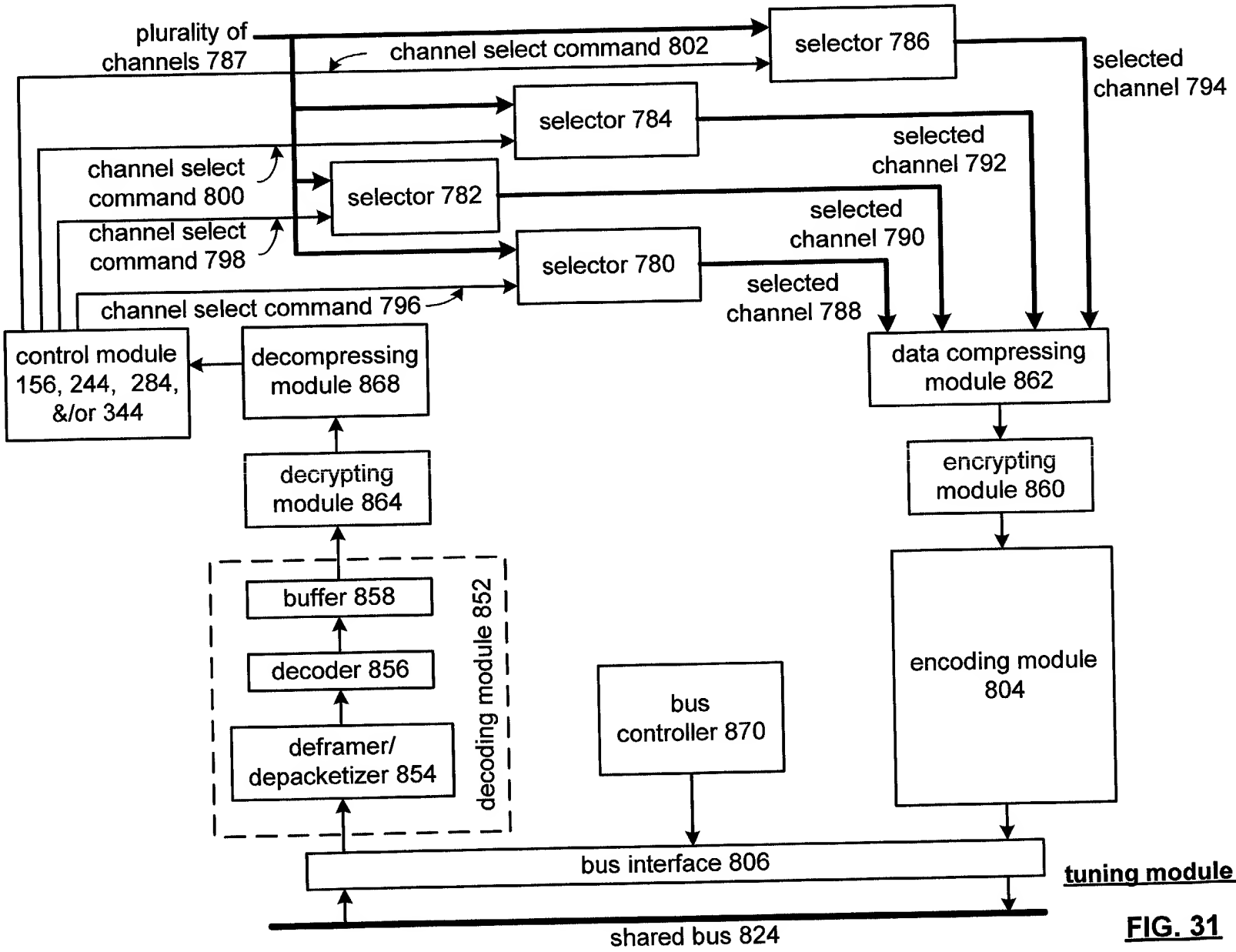


FIG. 31

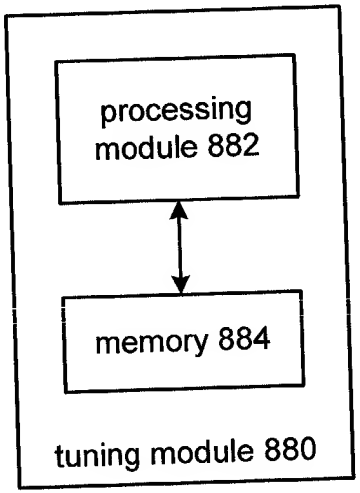


FIG. 32

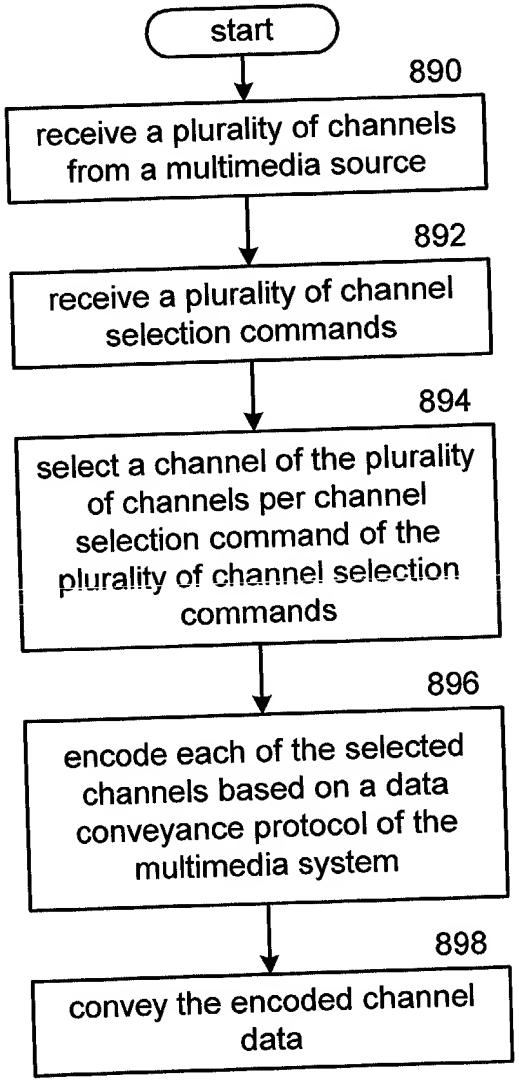


FIG. 33

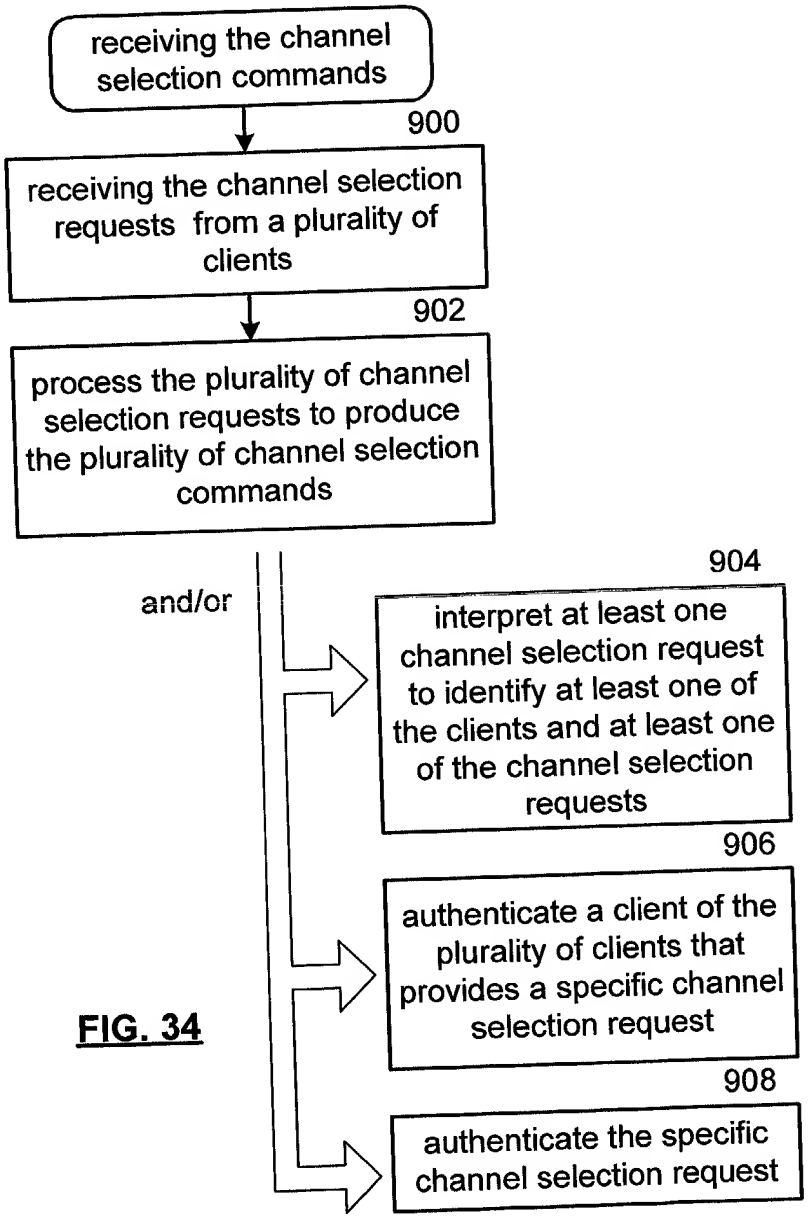


FIG. 34

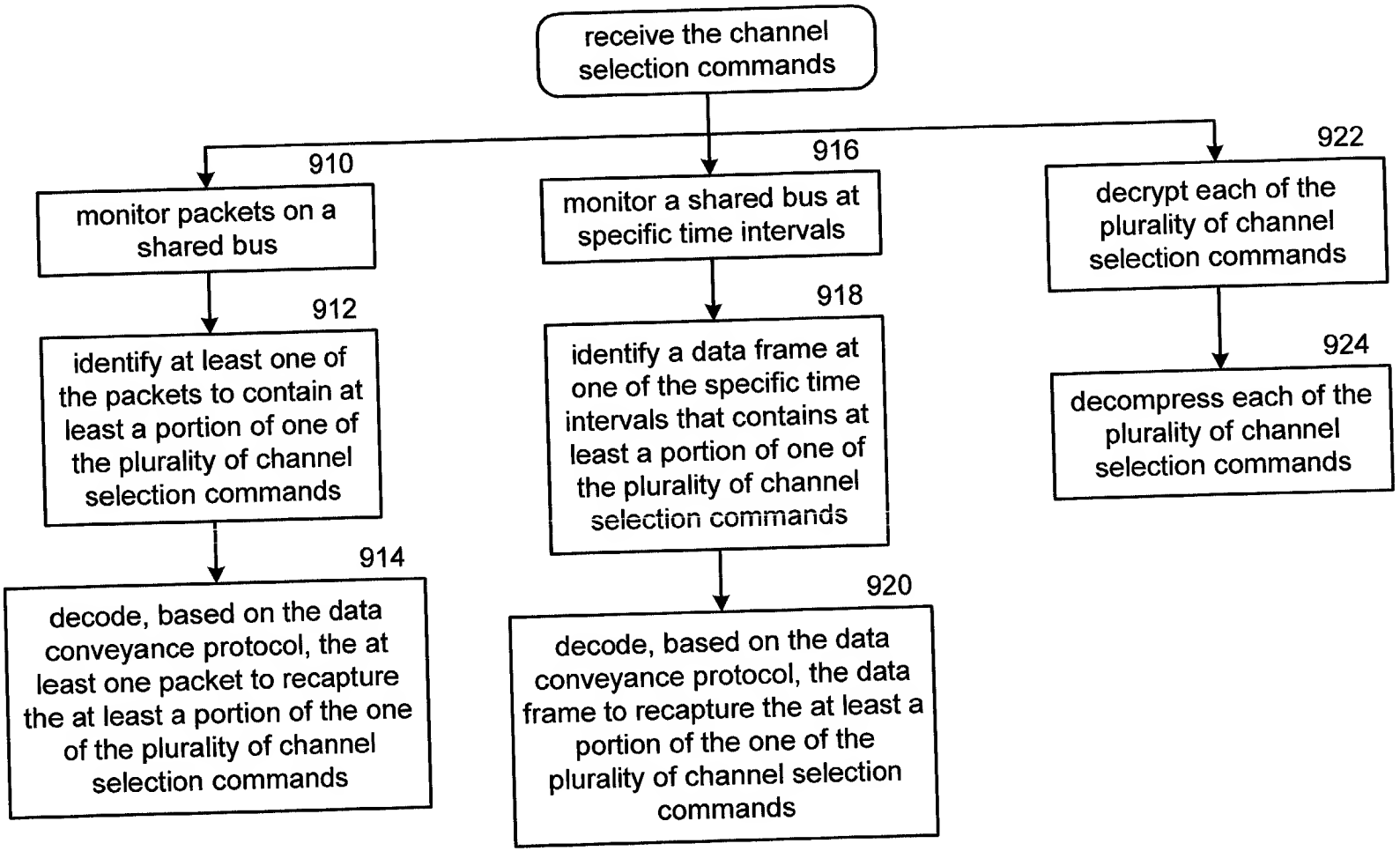

receive the channel selection commands
910
monitor packets on a shared bus
912
identify at least one of the packets to contain at least a portion of one of the plurality of channel selection commands
914
decode, based on the data conveyance protocol, the at least one packet to recapture the at least a portion of the one of the plurality of channel selection commands
916
monitor a shared bus at specific time intervals
918
identify a data frame at one of the specific time intervals that contains at least a portion of one of the plurality of channel selection commands
920
decode, based on the data conveyance protocol, the data frame to recapture the at least a portion of the one of the plurality of channel selection commands
922
decrypt each of the plurality of channel selection commands
924
decompress each of the plurality of channel selection commands

FIG. 35

TOSHIBA EXHIBIT 1060

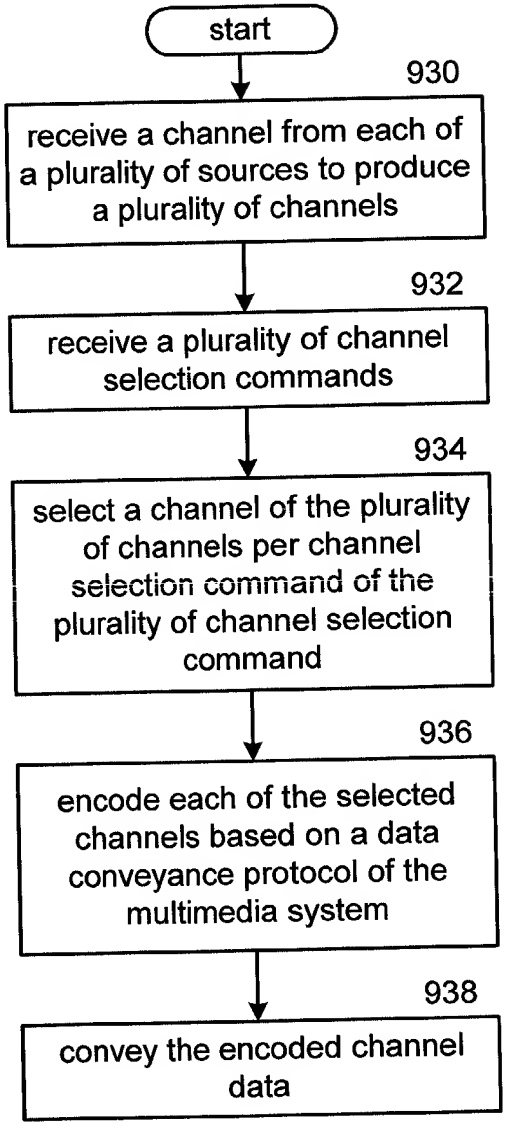


FIG. 36

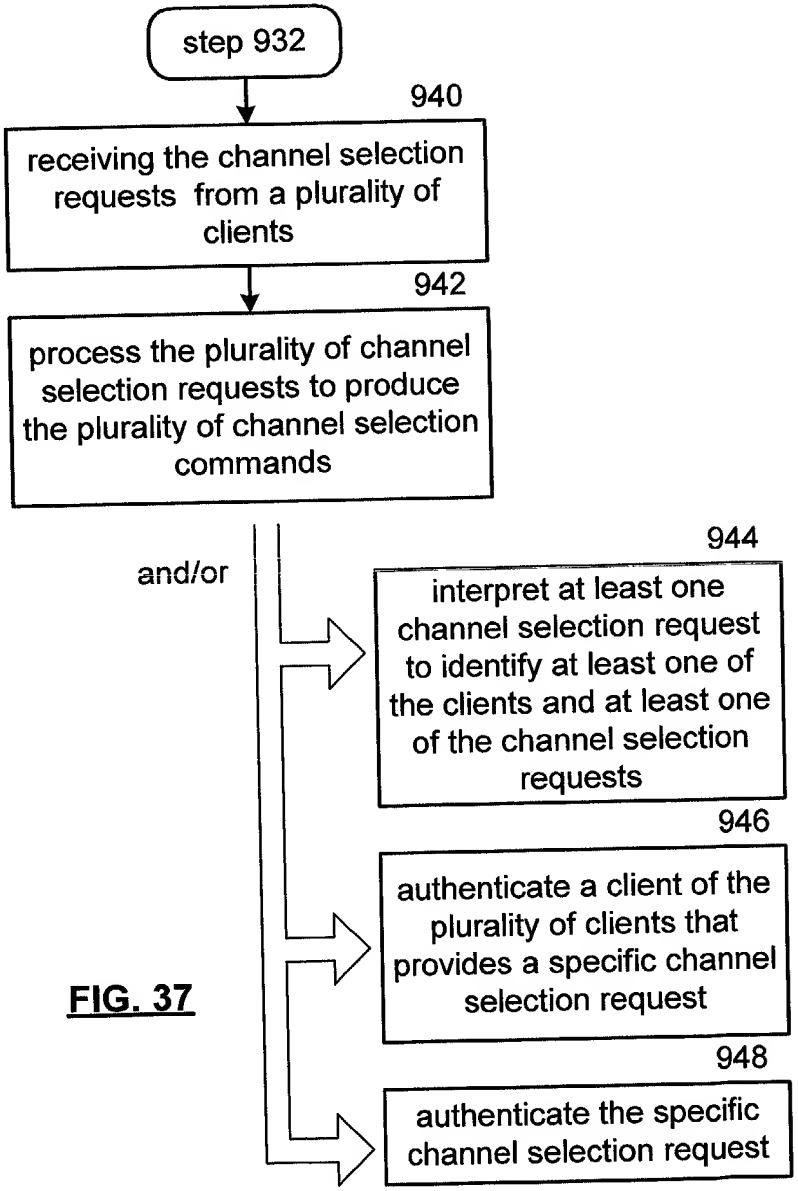


FIG. 37

Tomson Exhibit 1006

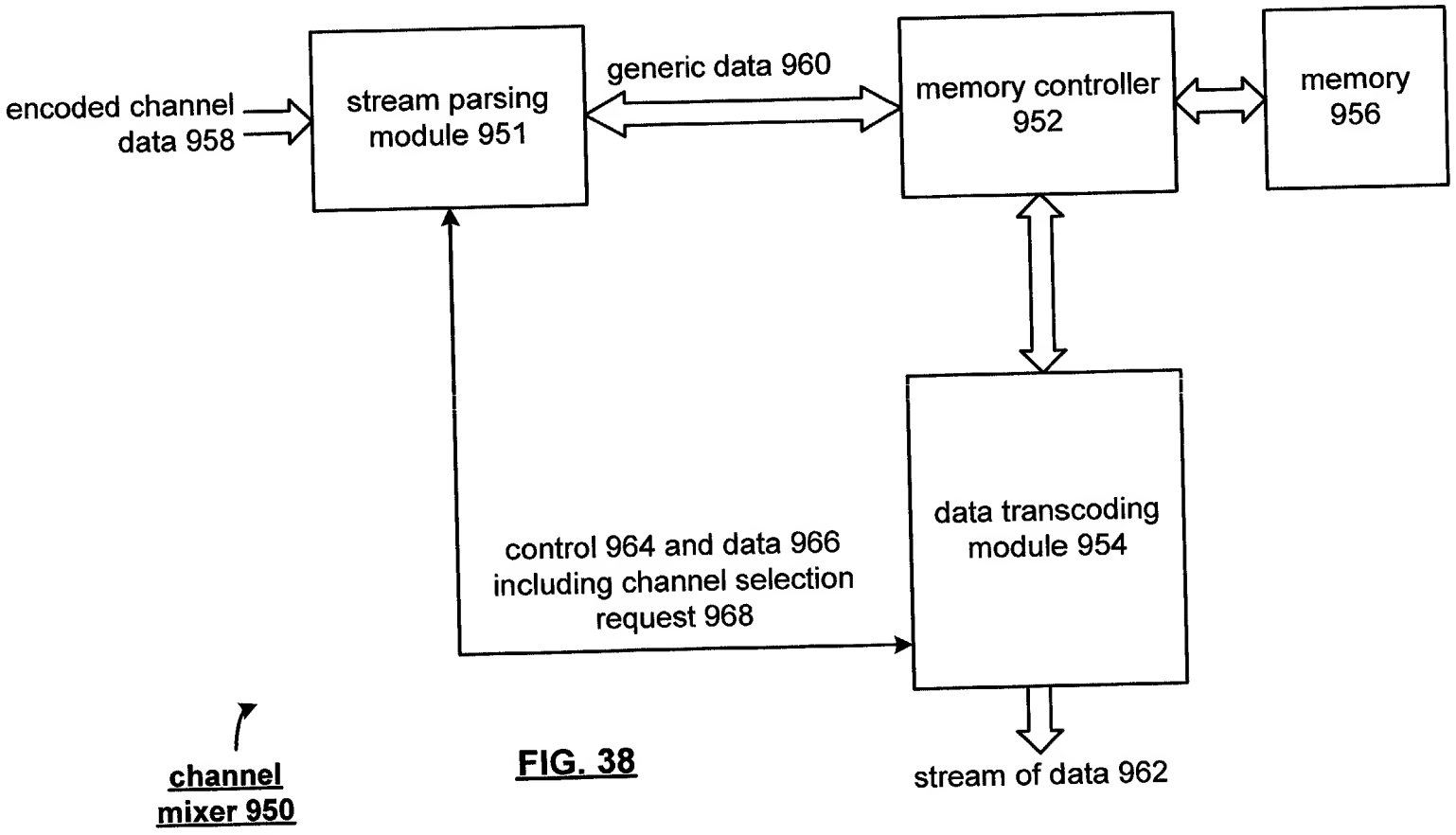


FIG. 38

TOTAL CLAIMS

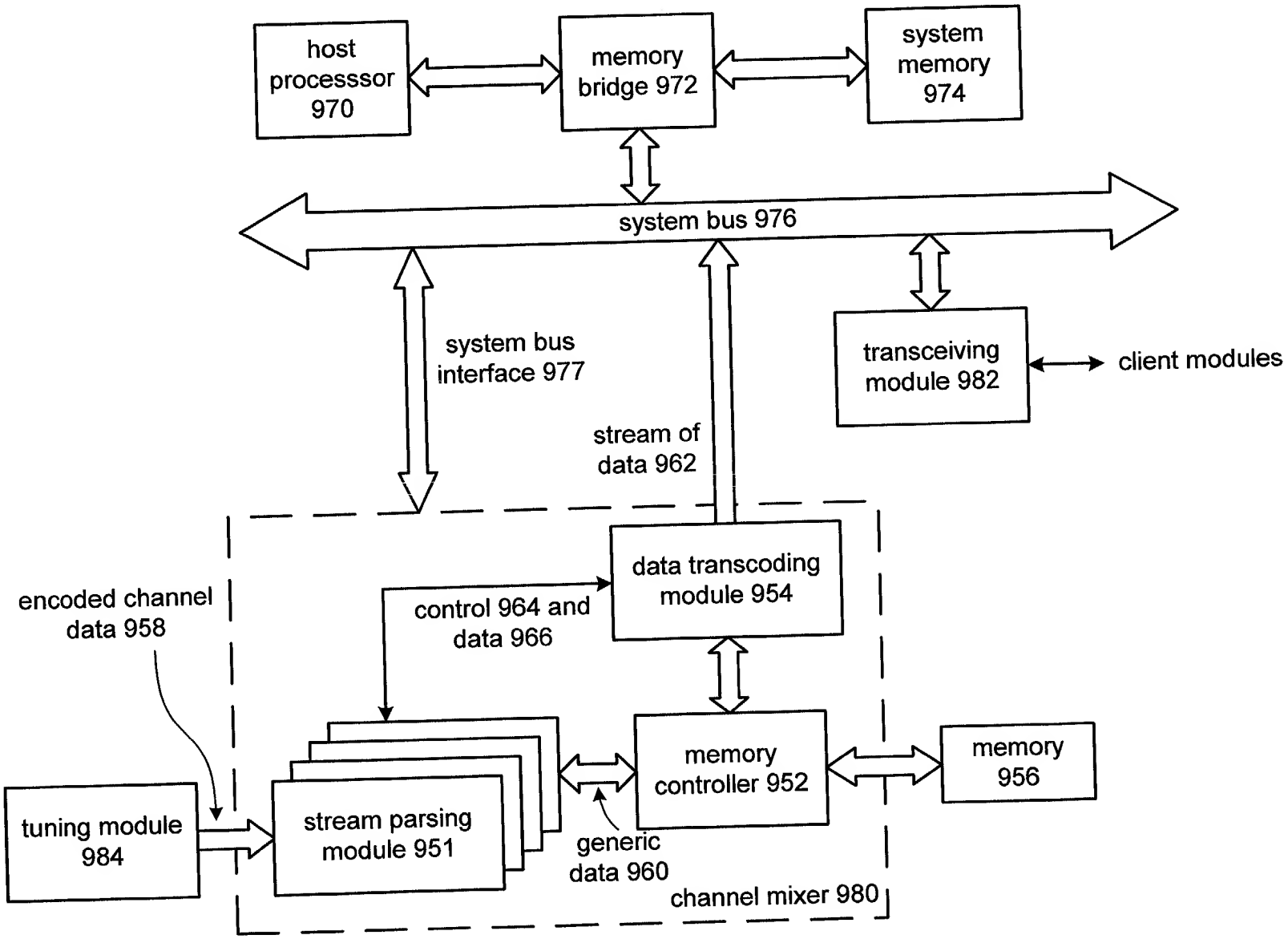
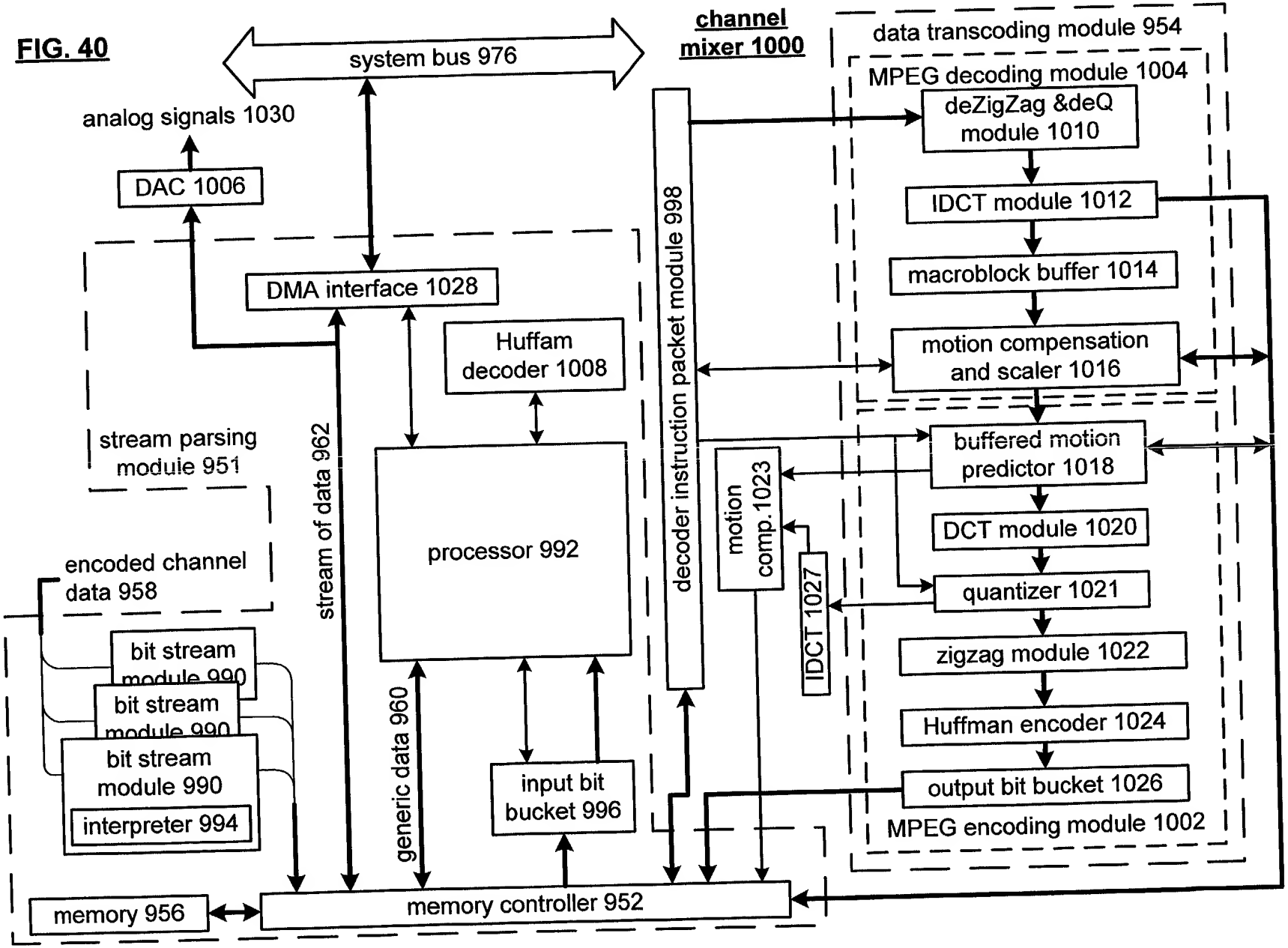


FIG. 39

TOTEGO' EOZ6986O

FIG. 40



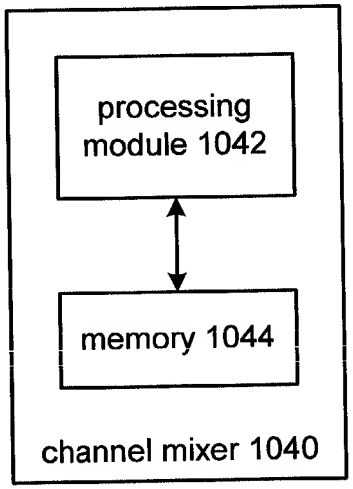

processing module 1042
memory 1044
channel mixer 1040

FIG. 41

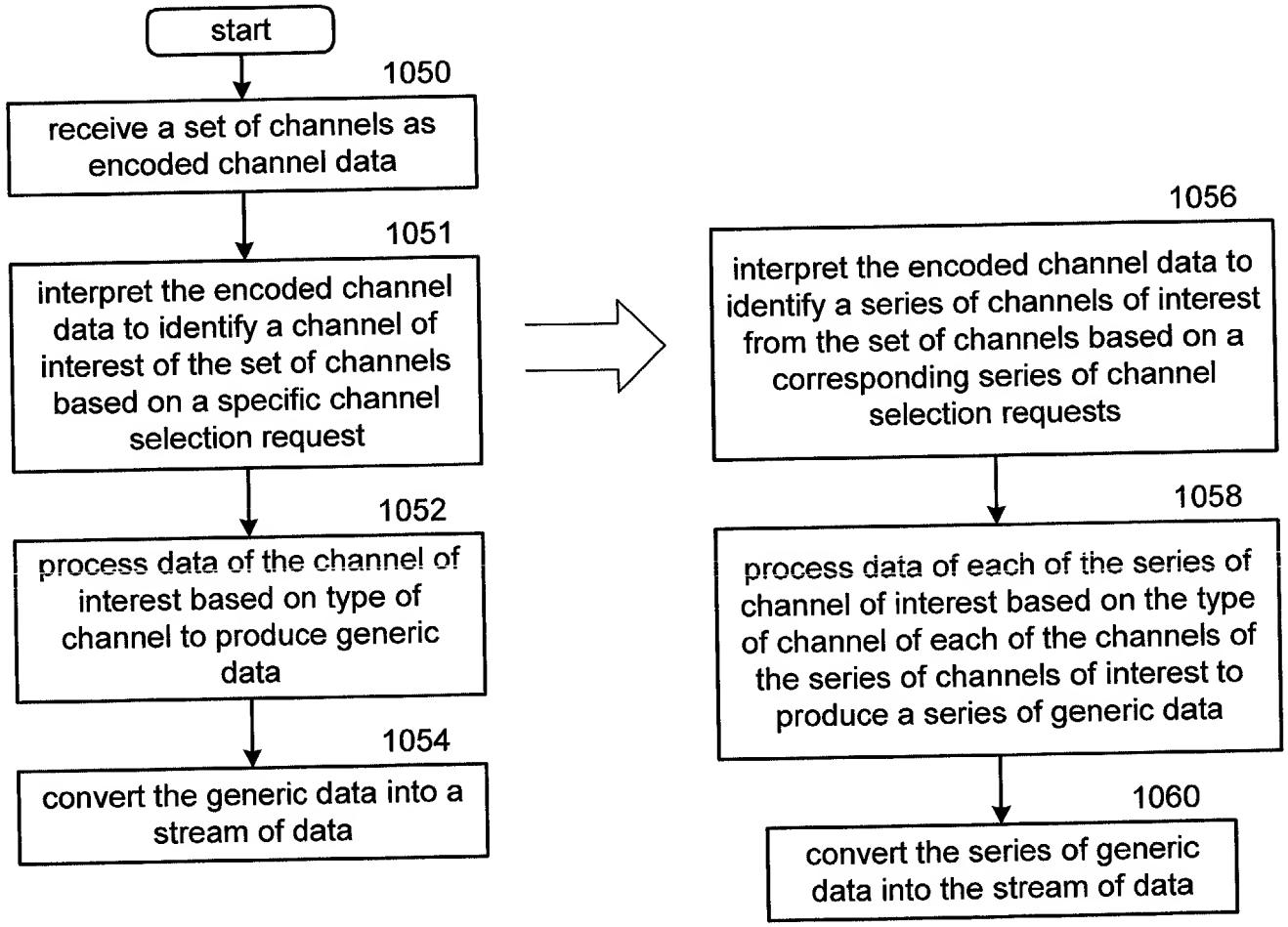

start
1050
receive a set of channels as encoded channel data
1051
interpret the encoded channel data to identify a channel of interest of the set of channels based on a specific channel selection request
1052
process data of the channel of interest based on type of channel to produce generic data
1054
convert the generic data into a stream of data
1056
interpret the encoded channel data to identify a series of channels of interest from the set of channels based on a corresponding series of channel selection requests
1058
process data of each of the series of channel of interest based on the type of channel of each of the channels of the series of channels of interest to produce a series of generic data
1060
convert the series of generic data into the stream of data

FIG. 42

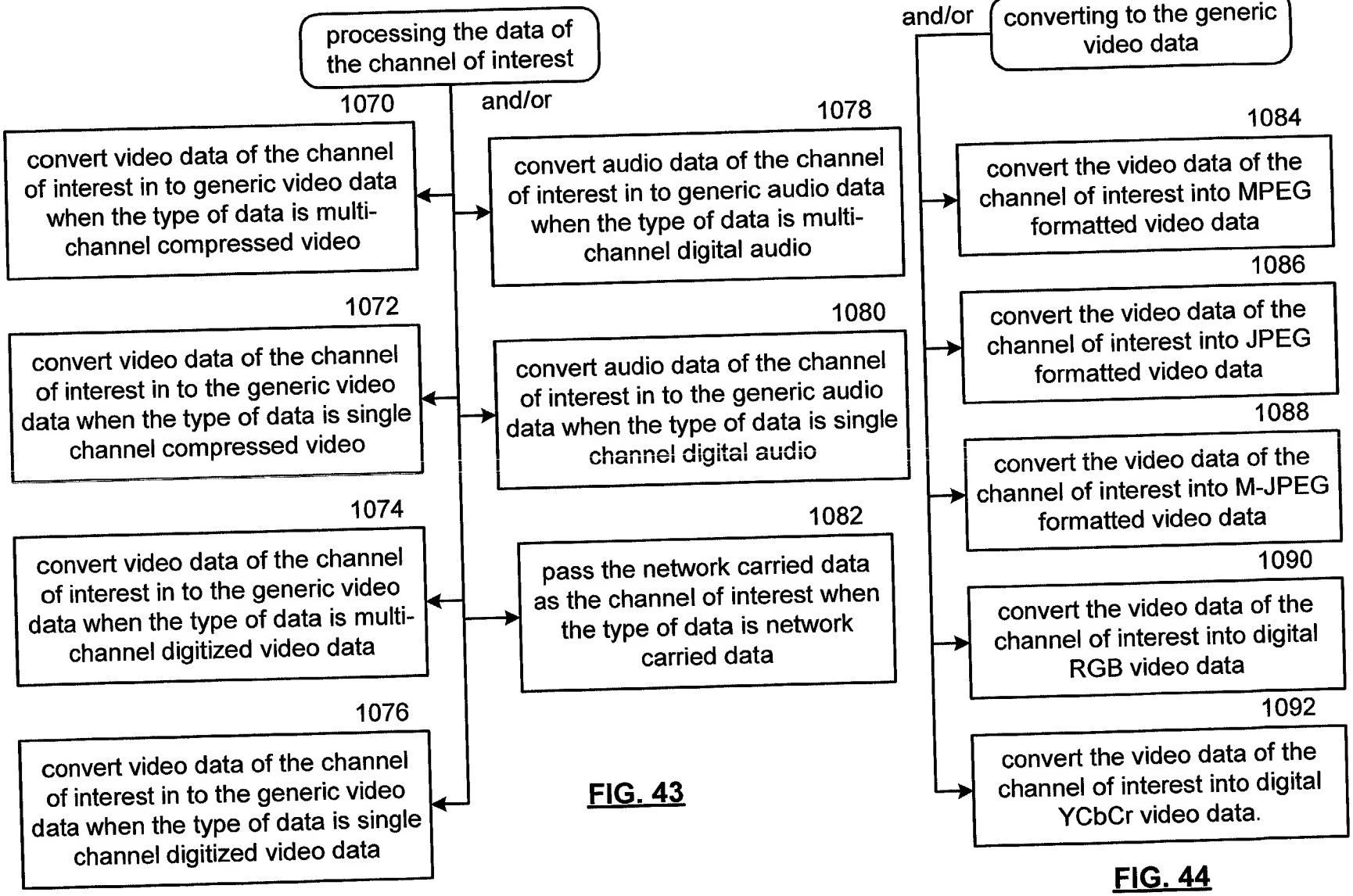

processing the data of the channel of interest
1070
convert video data of the channel of interest in to generic video data when the type of data is multi-channel compressed video
1072
convert video data of the channel of interest in to the generic video data when the type of data is single channel compressed video
1074
convert video data of the channel of interest in to the generic video data when the type of data is multi-channel digitized video data
1076
convert video data of the channel of interest in to the generic video data when the type of data is single channel digitized video data
and/or
1078
convert audio data of the channel of interest in to generic audio data when the type of data is multi-channel digital audio
1080
convert audio data of the channel of interest in to the generic audio data when the type of data is single channel digital audio
1082
pass the network carried data as the channel of interest when the type of data is network carried data
and/or
converting to the generic video data
1084
convert the video data of the channel of interest into MPEG formatted video data
1086
convert the video data of the channel of interest into JPEG formatted video data
1088
convert the video data of the channel of interest into M-JPEG formatted video data
1090
convert the video data of the channel of interest into digital RGB video data
1092
convert the video data of the channel of interest into digital YCbCr video data.

FIG. 43

FIG. 44

FOREIGN CORRESPONDENCE

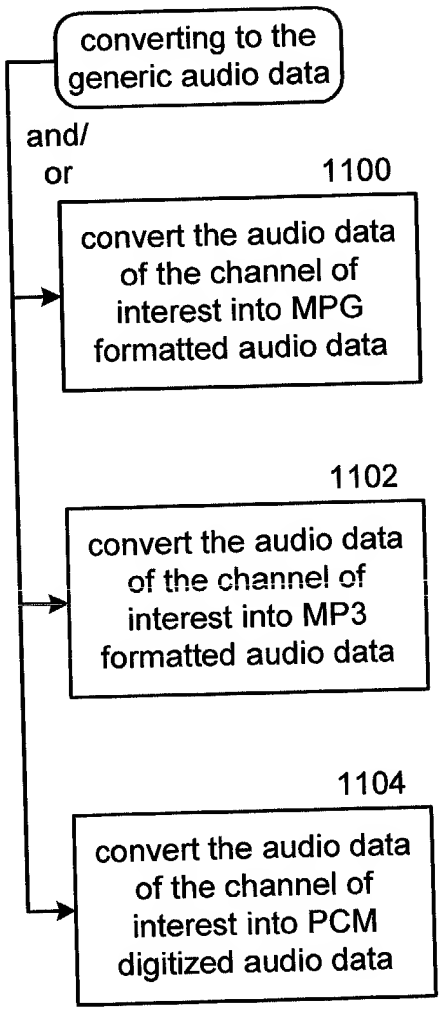


FIG. 45

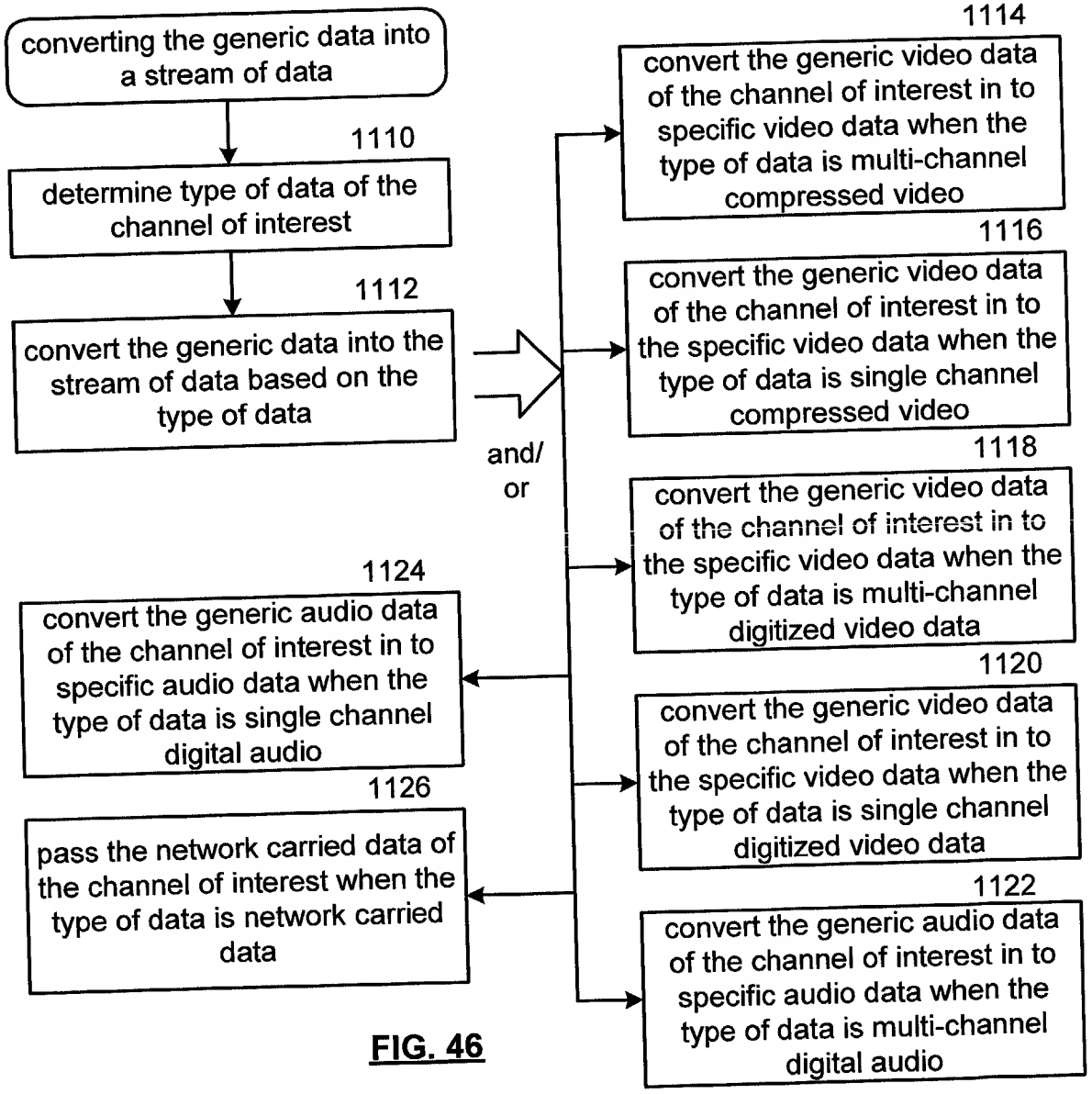


FIG. 46

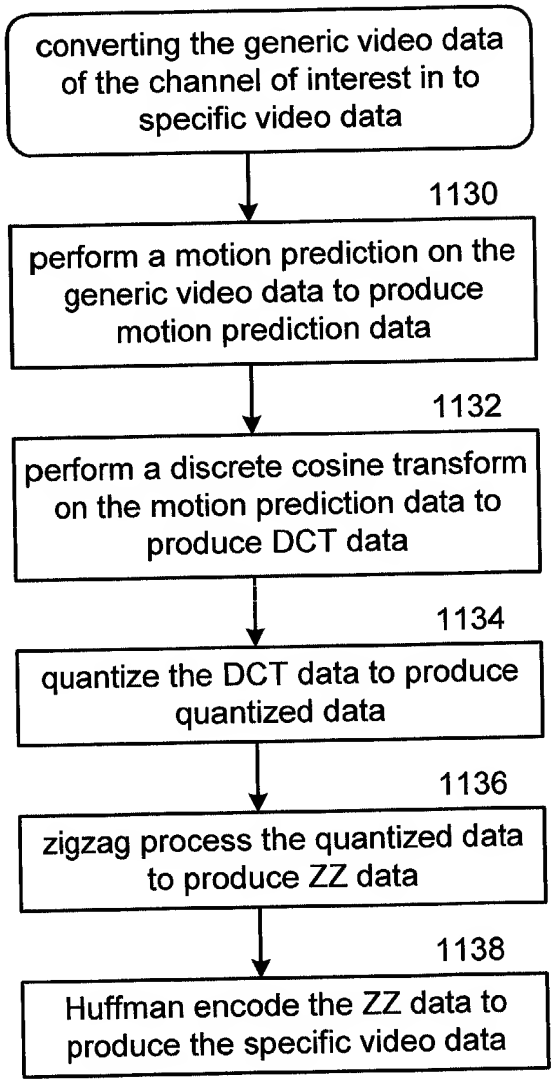

converting the generic video data of the channel of interest in to specific video data
1130
perform a motion prediction on the generic video data to produce motion prediction data
1132
perform a discrete cosine transform on the motion prediction data to produce DCT data
1134
quantize the DCT data to produce quantized data
1136
zigzag process the quantized data to produce ZZ data
1138
Huffman encode the ZZ data to produce the specific video data

FIG. 47

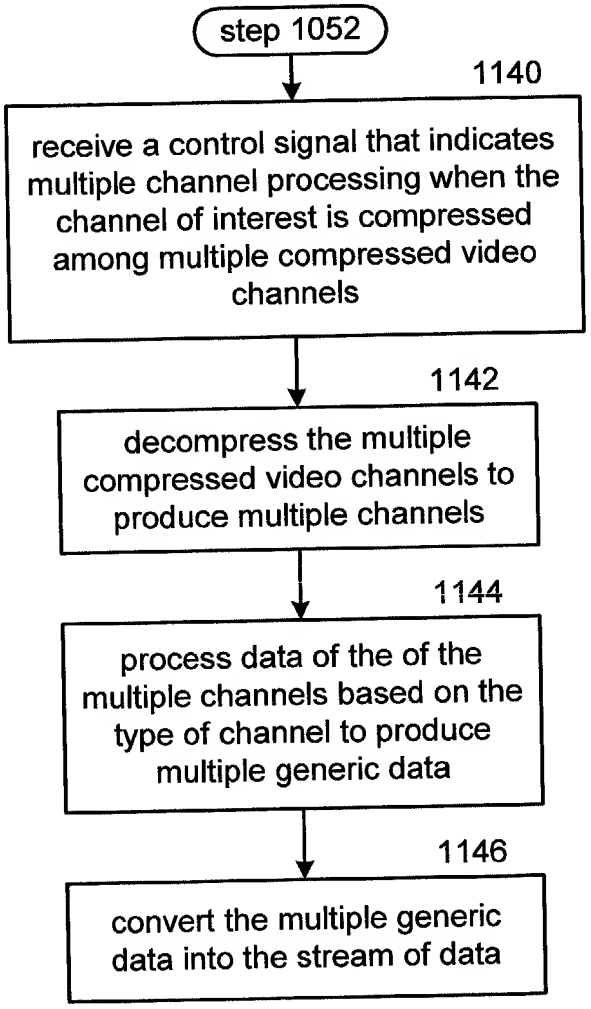

step 1052
1140
receive a control signal that indicates multiple channel processing when the channel of interest is compressed among multiple compressed video channels
1142
decompress the multiple compressed video channels to produce multiple channels
1144
process data of the of the multiple channels based on the type of channel to produce multiple generic data
1146
convert the multiple generic data into the stream of data

FIG. 48

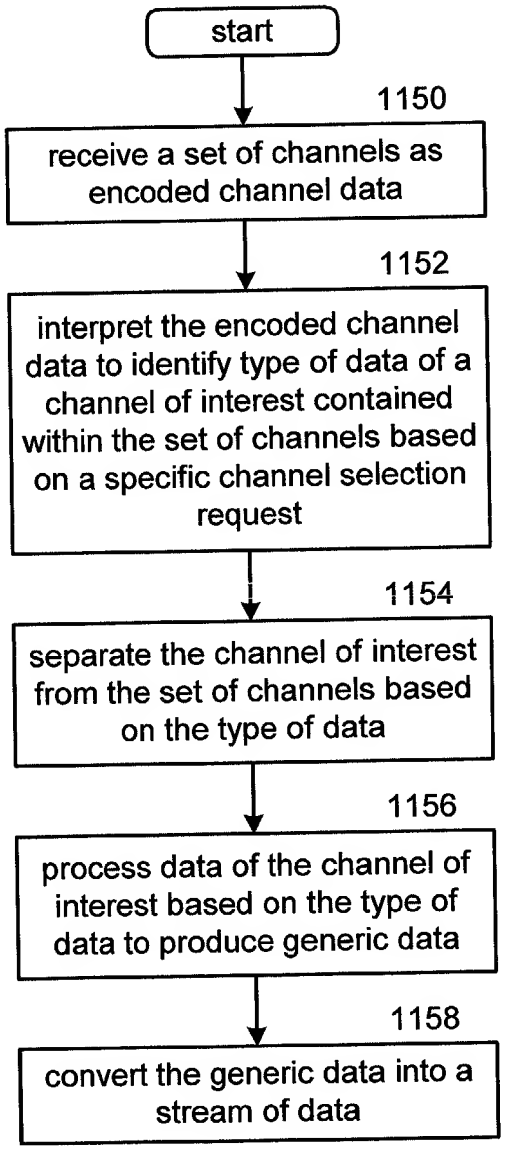

start
1150
receive a set of channels as encoded channel data
1152
interpret the encoded channel data to identify type of data of a channel of interest contained within the set of channels based on a specific channel selection request
1154
separate the channel of interest from the set of channels based on the type of data
1156
process data of the channel of interest based on the type of data to produce generic data
1158
convert the generic data into a stream of data

FIG. 49

TOTE30 E824360

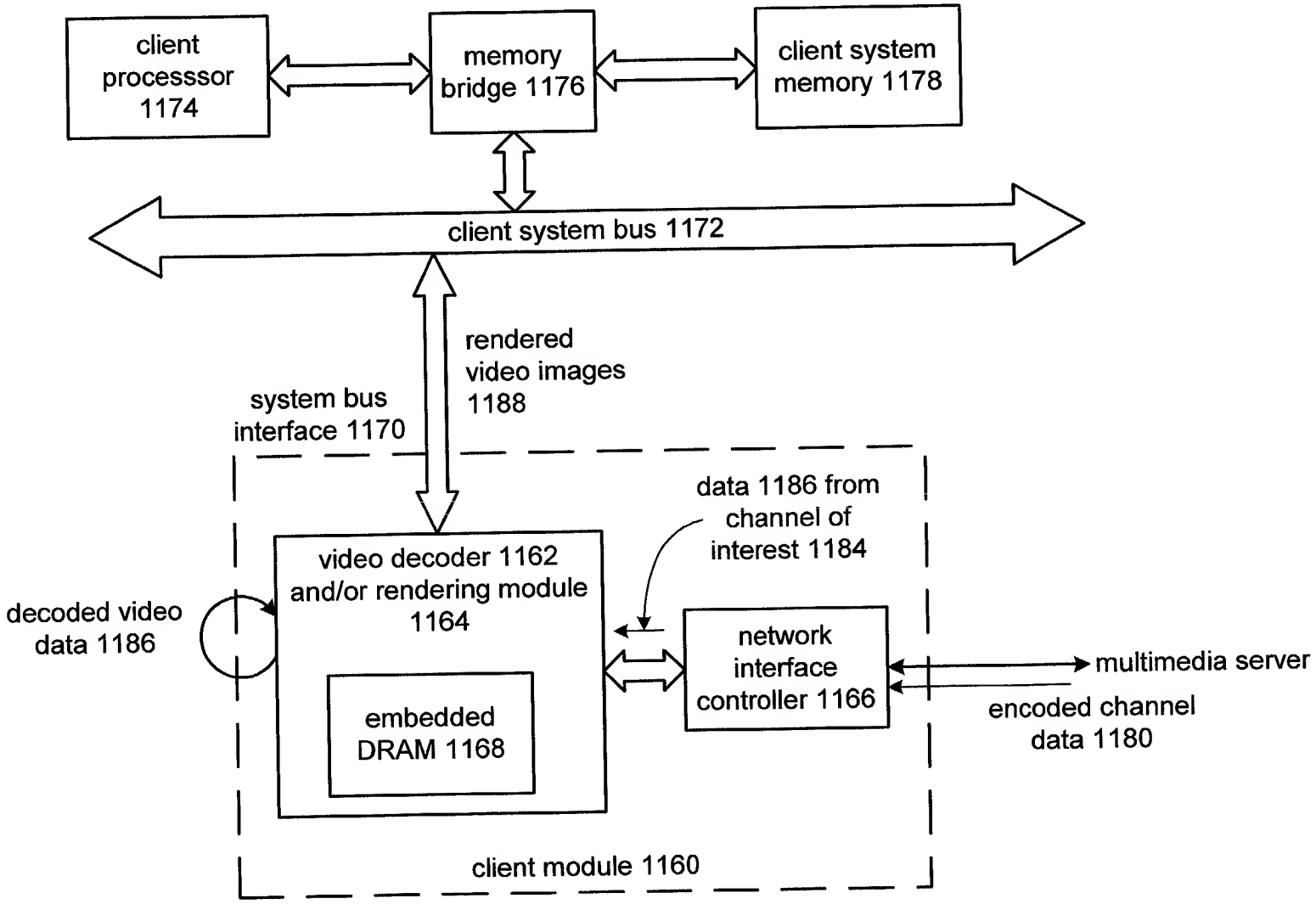


FIG. 50

TOTESOT C82T9960

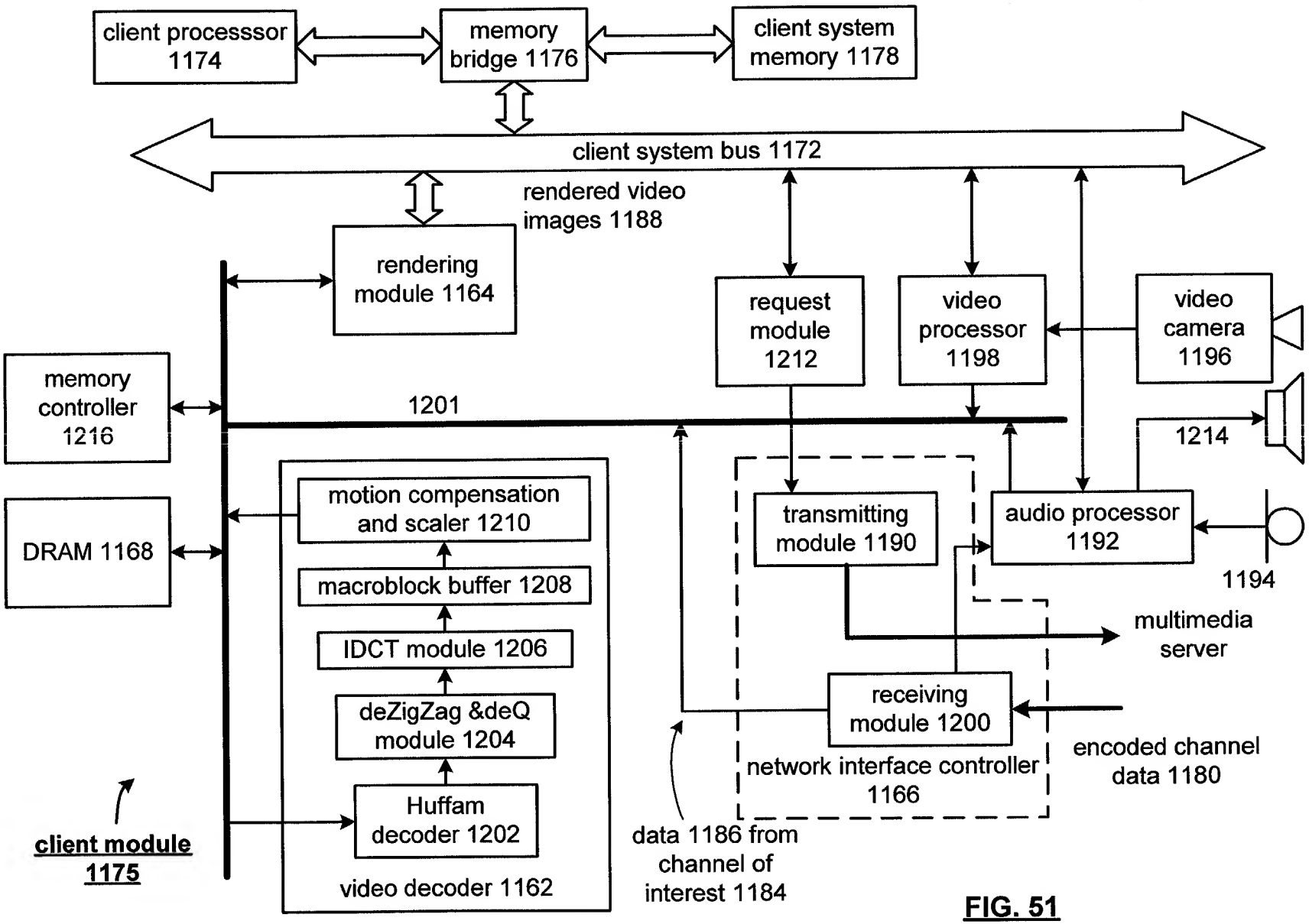


FIG. 51

FORESO: E02T9800

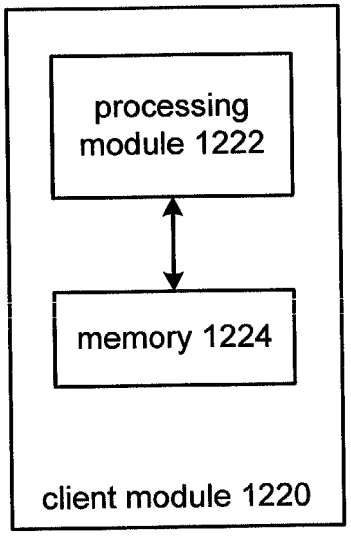


FIG. 52

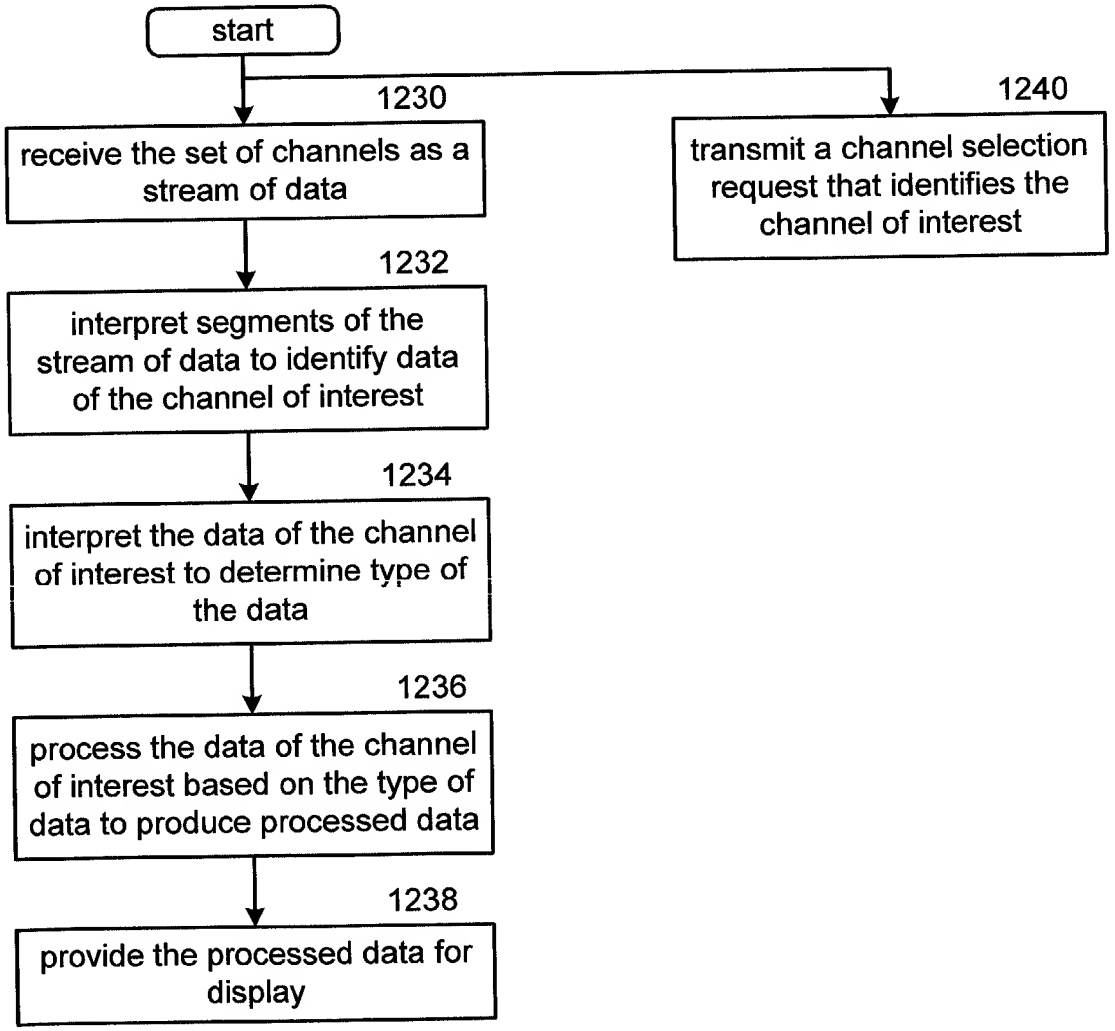


FIG. 53

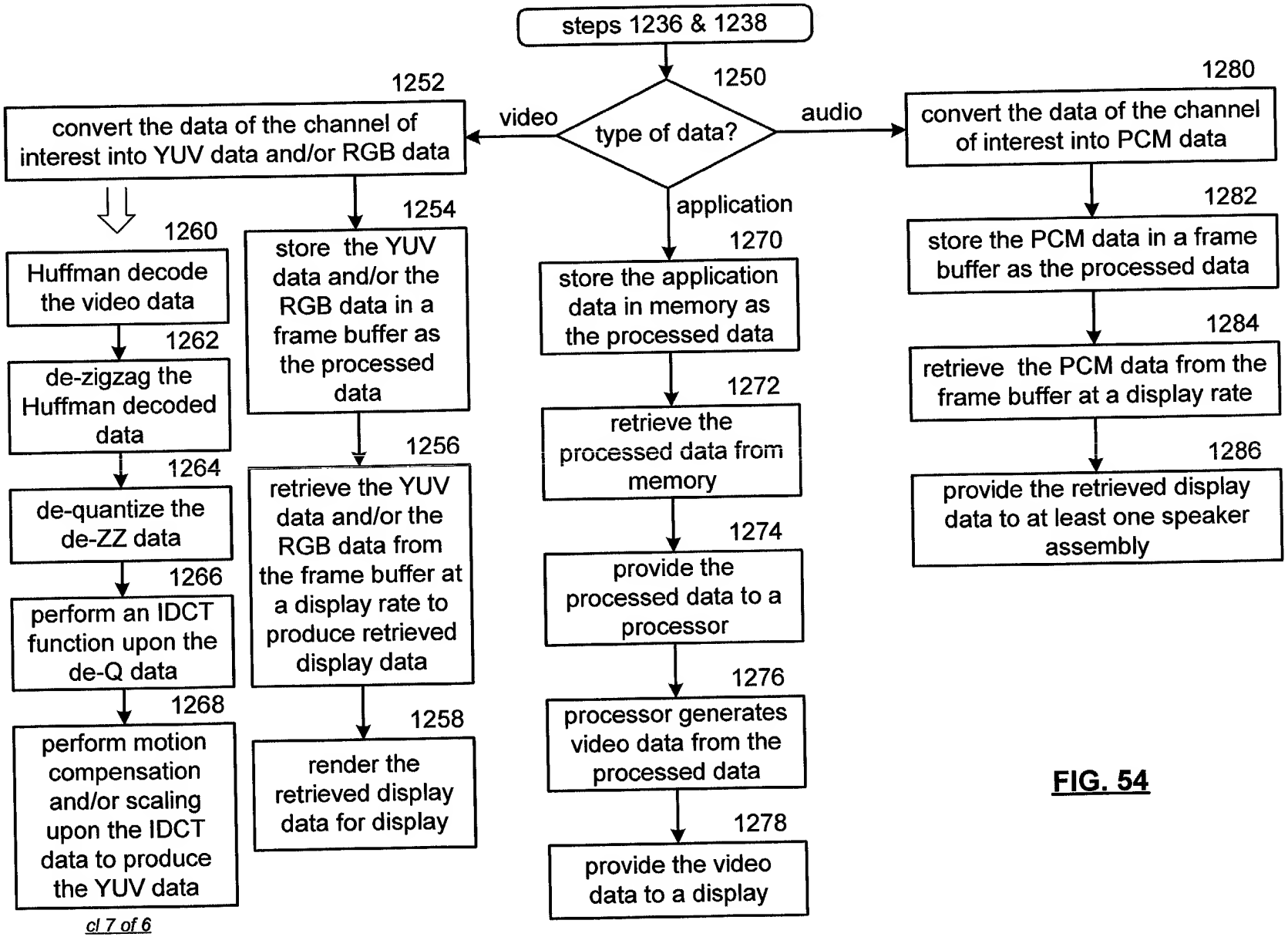

steps 1236 & 1238
1250
type of data?
video
audio
application
1252
convert the data of the channel of interest into YUV data and/or RGB data
1254
store the YUV data and/or the RGB data in a frame buffer as the processed data
1256
retrieve the YUV data and/or the RGB data from the frame buffer at a display rate to produce retrieved display data
1258
render the retrieved display data for display
1260
Huffman decode the video data
1262
de-zigzag the Huffman decoded data
1264
de-quantize the de-ZZ data
1266
perform an IDCT function upon the de-Q data
1268
perform motion compensation and/or scaling upon the IDCT data to produce the YUV data
1270
store the application data in memory as the processed data
1272
retrieve the processed data from memory
1274
provide the processed data to a processor
1276
processor generates video data from the processed data
1278
provide the video data to a display
1280
convert the data of the channel of interest into PCM data
1282
store the PCM data in a frame buffer as the processed data
1284
retrieve the PCM data from the frame buffer at a display rate
1286
provide the retrieved display data to at least one speaker assembly

FIG. 54

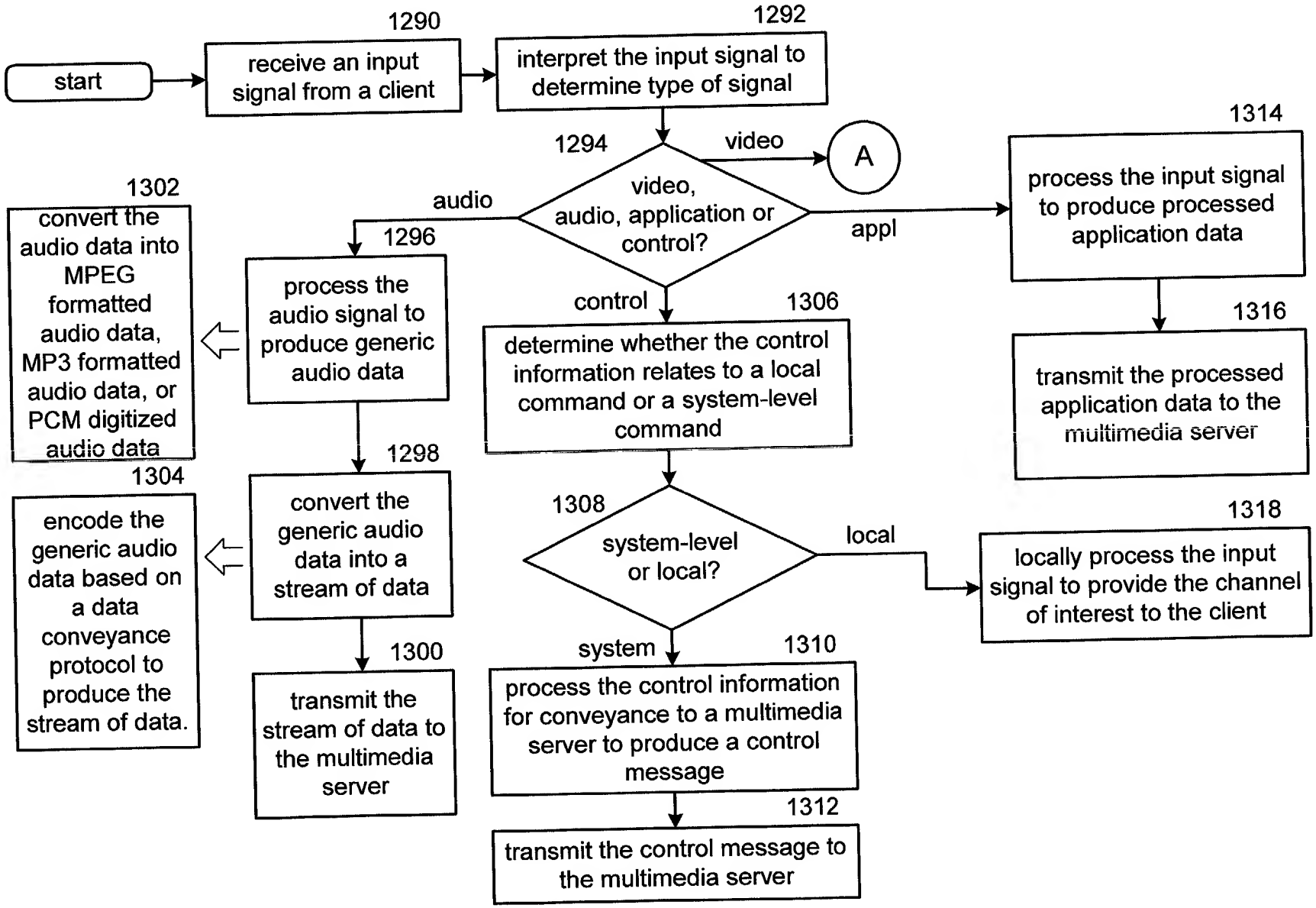

start
receive an input signal from a client
1290
interpret the input signal to determine type of signal
1292
1294
video, audio, application or control?
video
A
audio
appl
control
1296
process the audio signal to produce generic audio data
1302
convert the audio data into MPEG formatted audio data, MP3 formatted audio data, or PCM digitized audio data
1298
convert the generic audio data into a stream of data
1304
encode the generic audio data based on a data conveyance protocol to produce the stream of data.
1300
transmit the stream of data to the multimedia server
1306
determine whether the control information relates to a local command or a system-level command
1308
system-level or local?
local
system
1310
process the control information for conveyance to a multimedia server to produce a control message
1312
transmit the control message to the multimedia server
1314
process the input signal to produce processed application data
1316
transmit the processed application data to the multimedia server
1318
locally process the input signal to provide the channel of interest to the client

FIG. 55

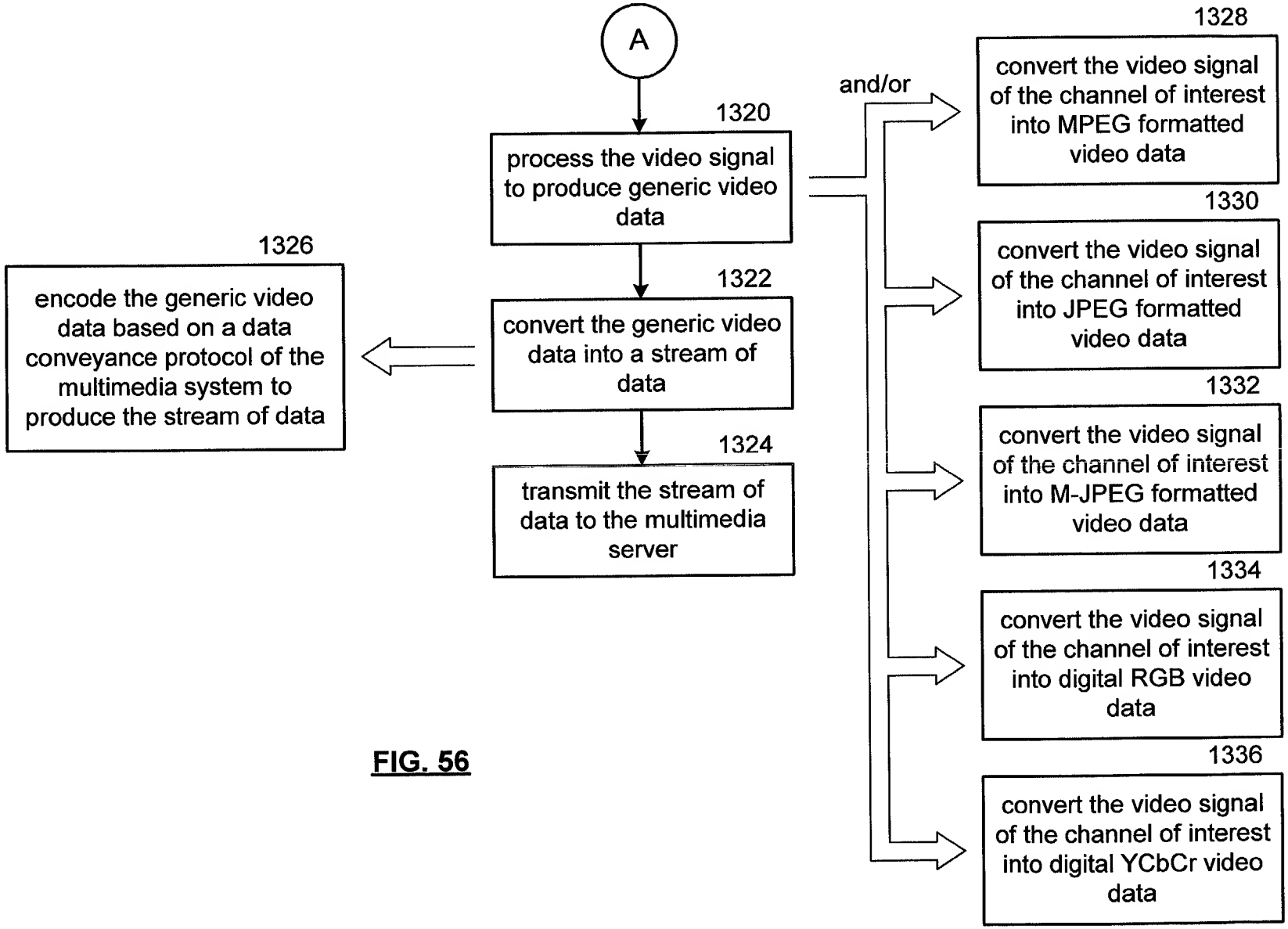

A
1320
process the video signal to produce generic video data
1322
convert the generic video data into a stream of data
1324
transmit the stream of data to the multimedia server
1326
encode the generic video data based on a data conveyance protocol of the multimedia system to produce the stream of data
and/or
1328
convert the video signal of the channel of interest into MPEG formatted video data
1330
convert the video signal of the channel of interest into JPEG formatted video data
1332
convert the video signal of the channel of interest into M-JPEG formatted video data
1334
convert the video signal of the channel of interest into digital RGB video data
1336
convert the video signal of the channel of interest into digital YCbCr video data

FIG. 56

Telesto Exhibit

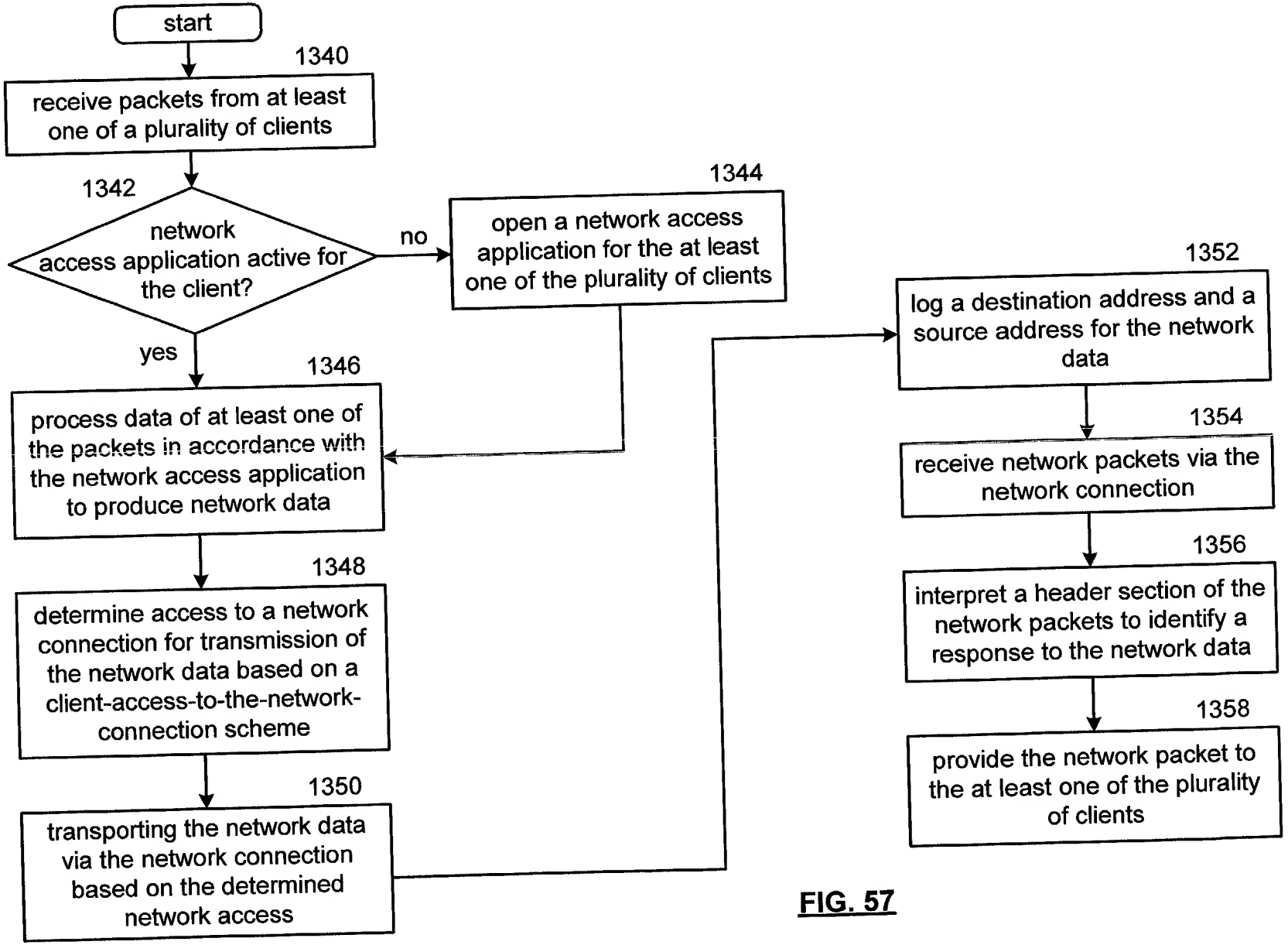


FIG. 57

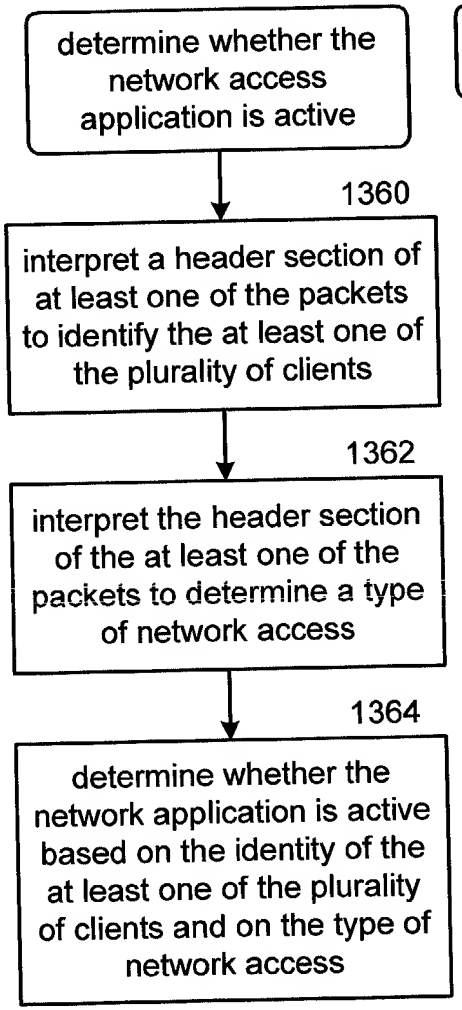


FIG. 58

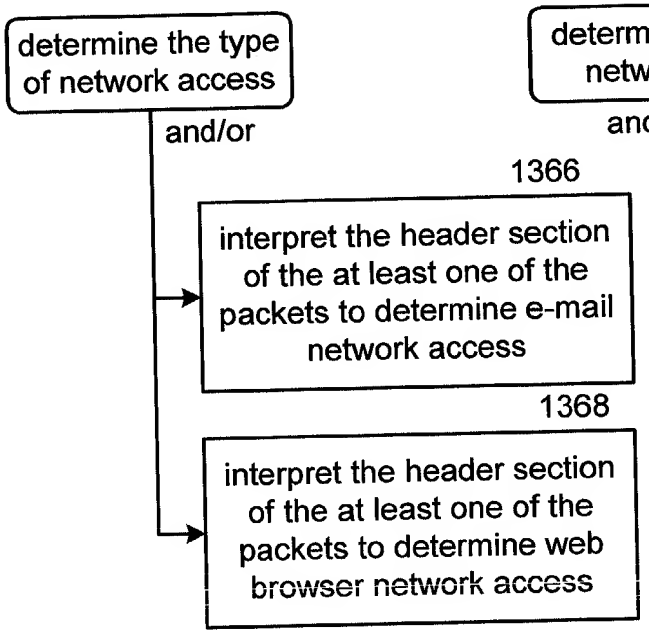


FIG. 59

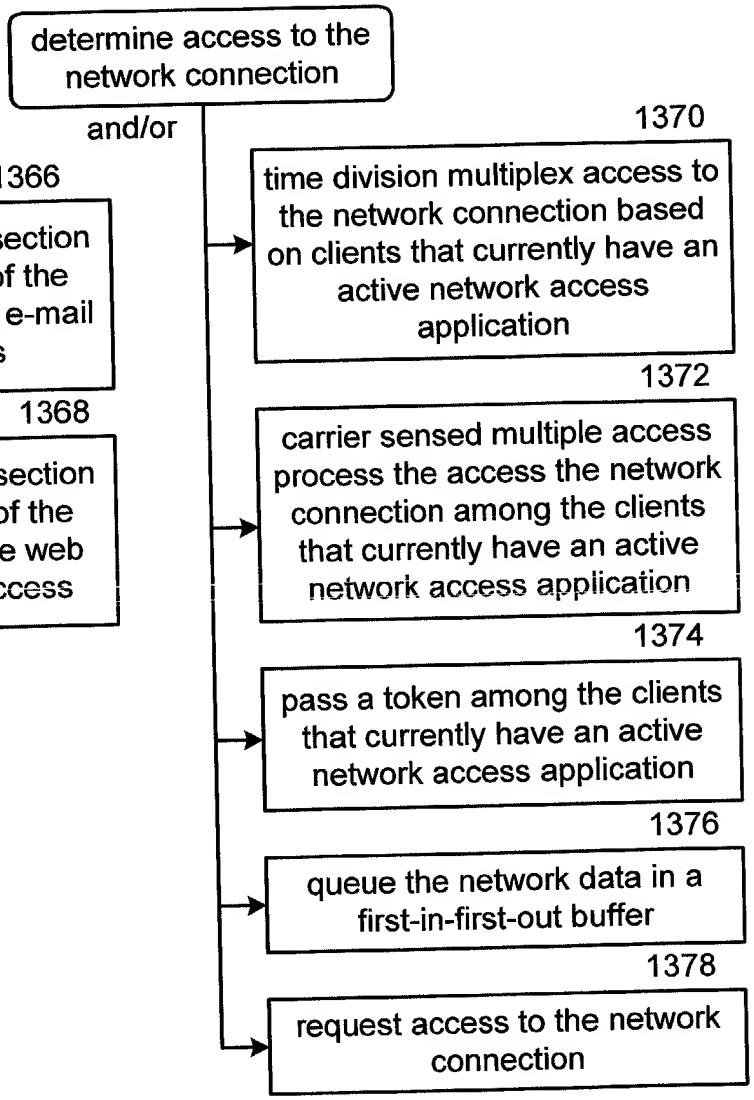


FIG. 60

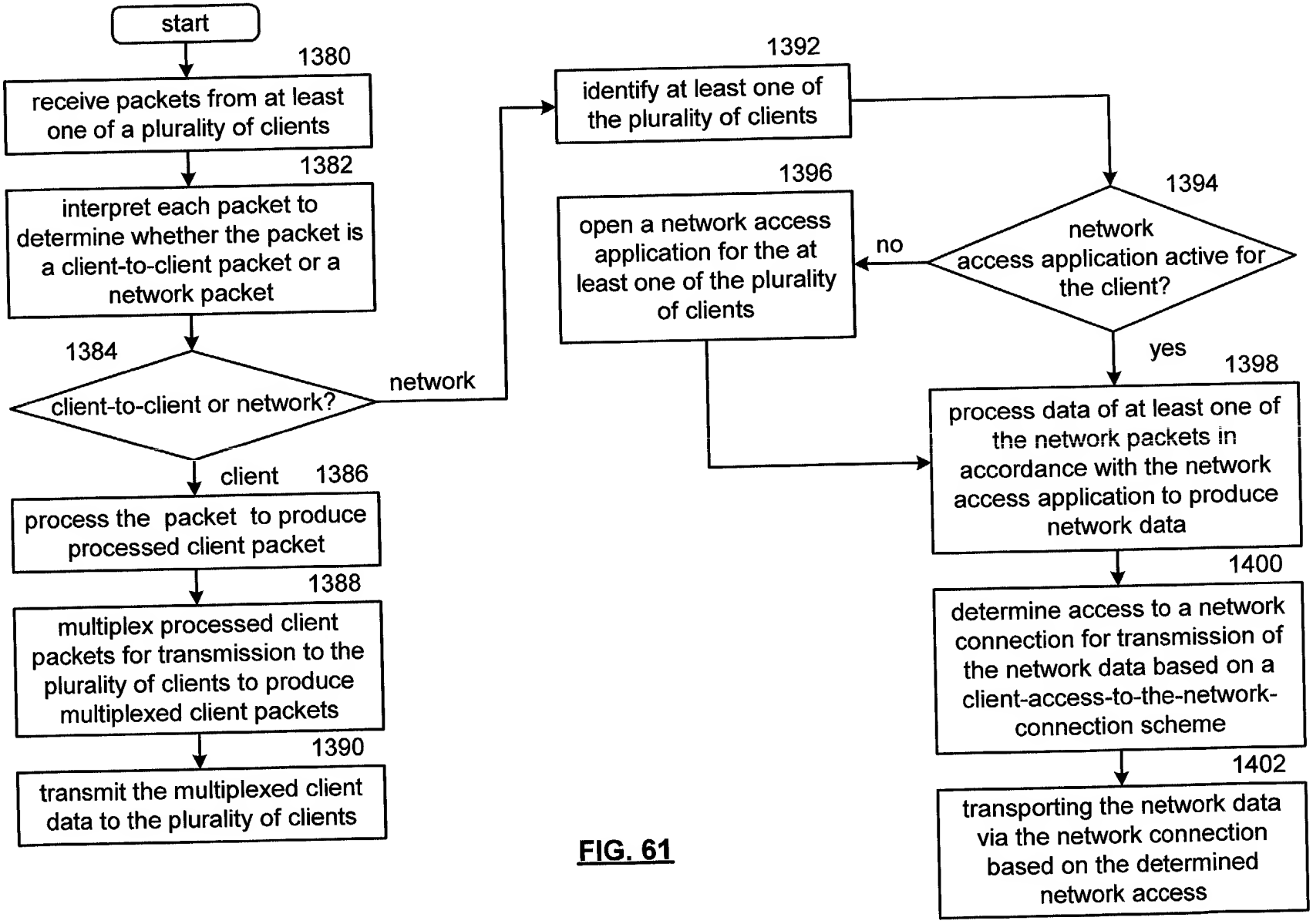

start
1380
receive packets from at least one of a plurality of clients
1382
interpret each packet to determine whether the packet is a client-to-client packet or a network packet
1384
client-to-client or network?
network
client
1386
process the packet to produce processed client packet
1388
multiplex processed client packets for transmission to the plurality of clients to produce multiplexed client packets
1390
transmit the multiplexed client data to the plurality of clients
1392
identify at least one of the plurality of clients
1394
network access application active for the client?
no
1396
open a network access application for the at least one of the plurality of clients
yes
1398
process data of at least one of the network packets in accordance with the network access application to produce network data
1400
determine access to a network connection for transmission of the network data based on a client-access-to-the-network-connection scheme
1402
transporting the network data via the network connection based on the determined network access

FIG. 61

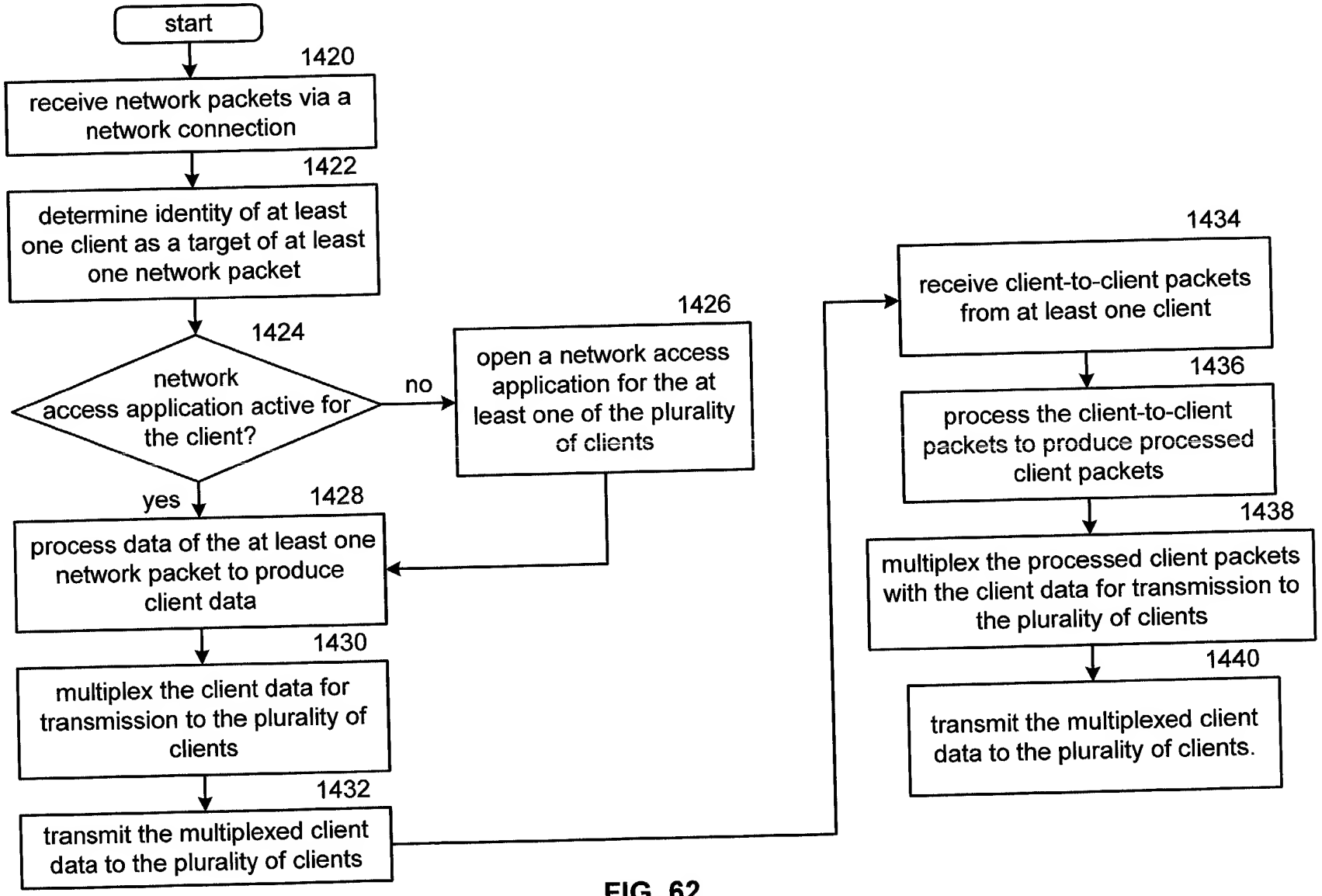

start
1420
receive network packets via a network connection
1422
determine identity of at least one client as a target of at least one network packet
1424
network access application active for the client?
no
1426
open a network access application for the at least one of the plurality of clients
yes
1428
process data of the at least one network packet to produce client data
1430
multiplex the client data for transmission to the plurality of clients
1432
transmit the multiplexed client data to the plurality of clients
1434
receive client-to-client packets from at least one client
1436
process the client-to-client packets to produce processed client packets
1438
multiplex the processed client packets with the client data for transmission to the plurality of clients
1440
transmit the multiplexed client data to the plurality of clients.

FIG. 62

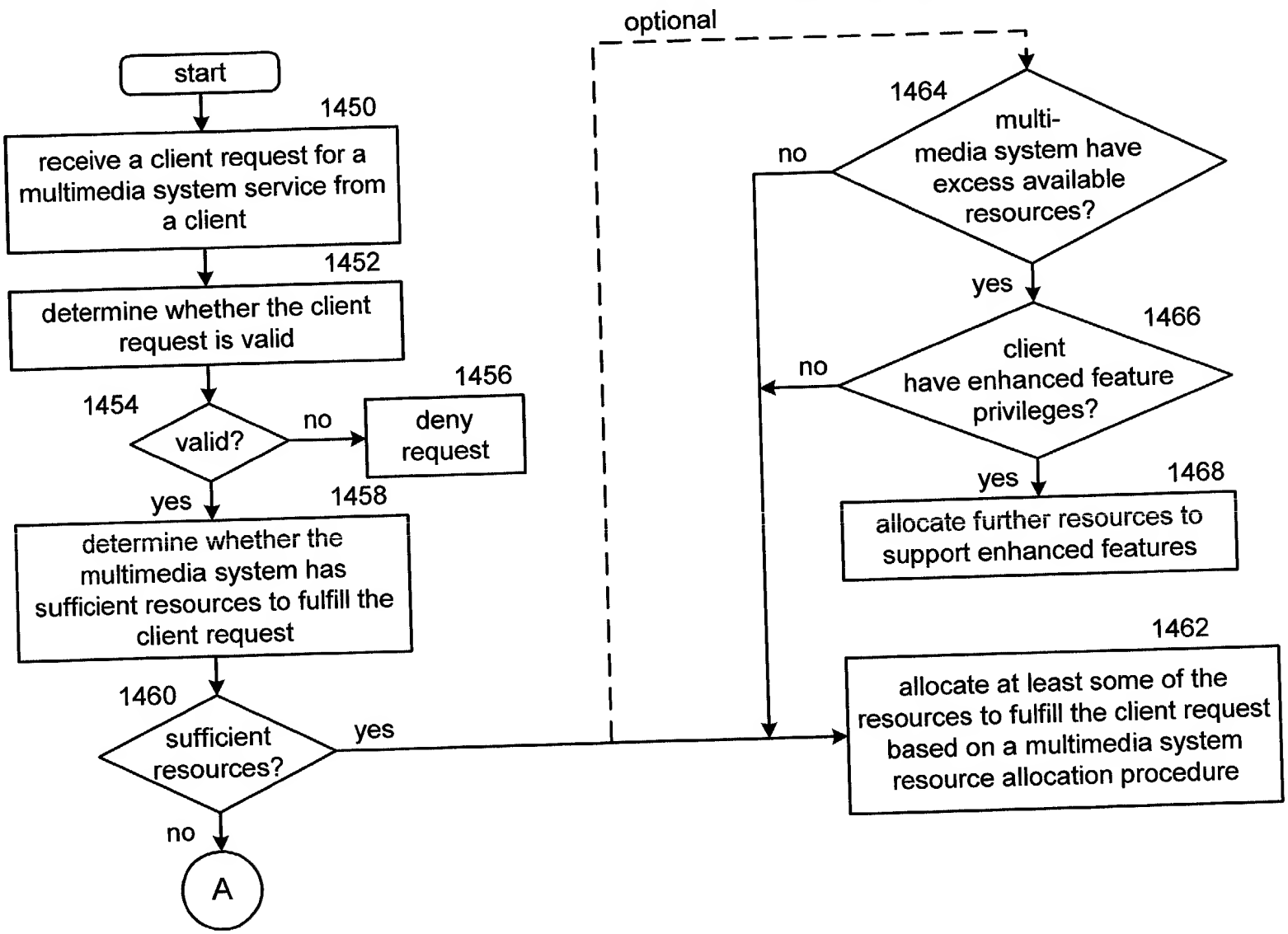

start
1450
receive a client request for a multimedia system service from a client
1452
determine whether the client request is valid
1454
valid?
no
1456
deny request
yes
1458
determine whether the multimedia system has sufficient resources to fulfill the client request
1460
sufficient resources?
yes
no
A
optional
1464
multi-media system have excess available resources?
no
yes
1466
client have enhanced feature privileges?
no
yes
1468
allocate further resources to support enhanced features
1462
allocate at least some of the resources to fulfill the client request based on a multimedia system resource allocation procedure

FIG. 63

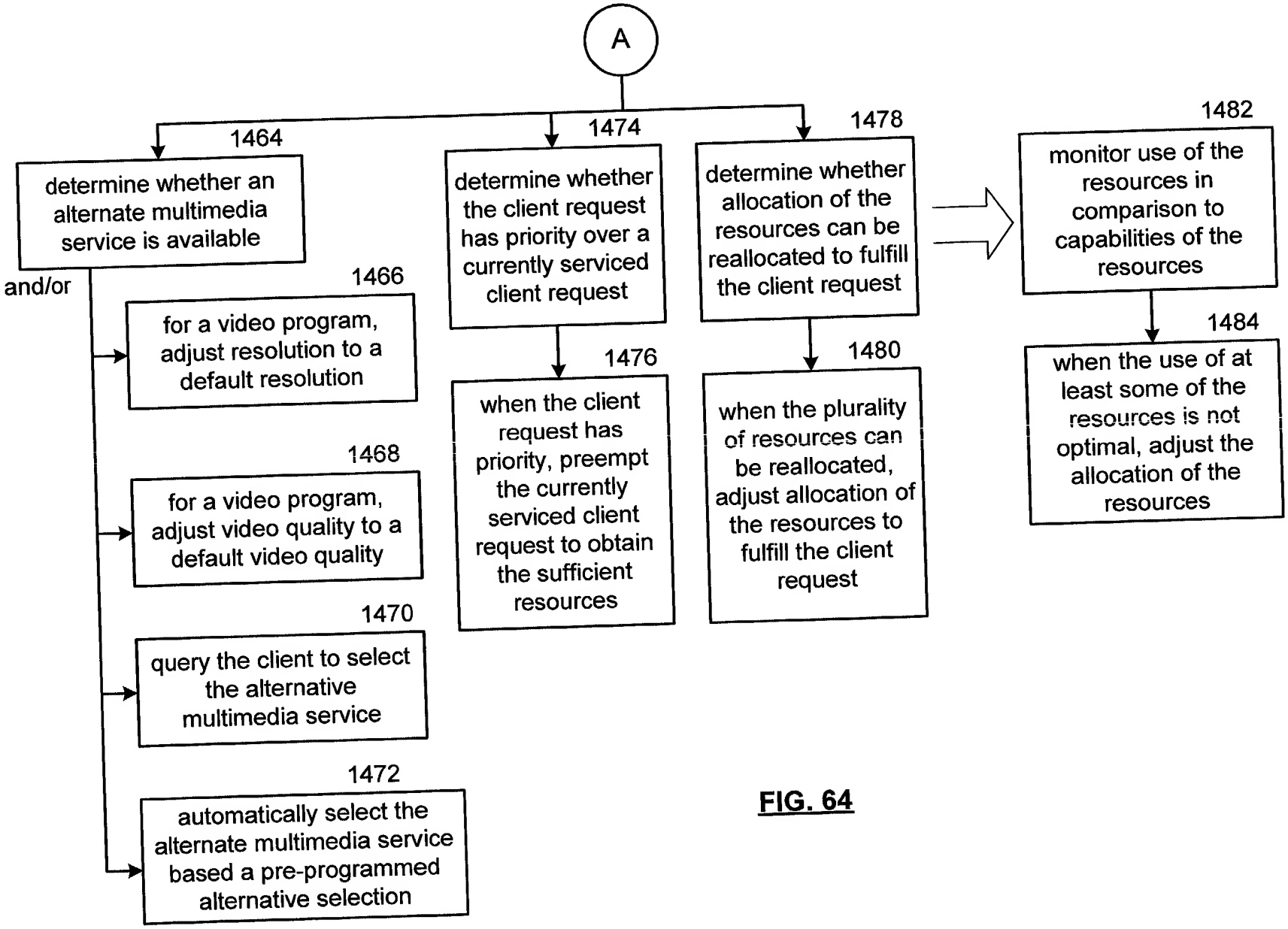
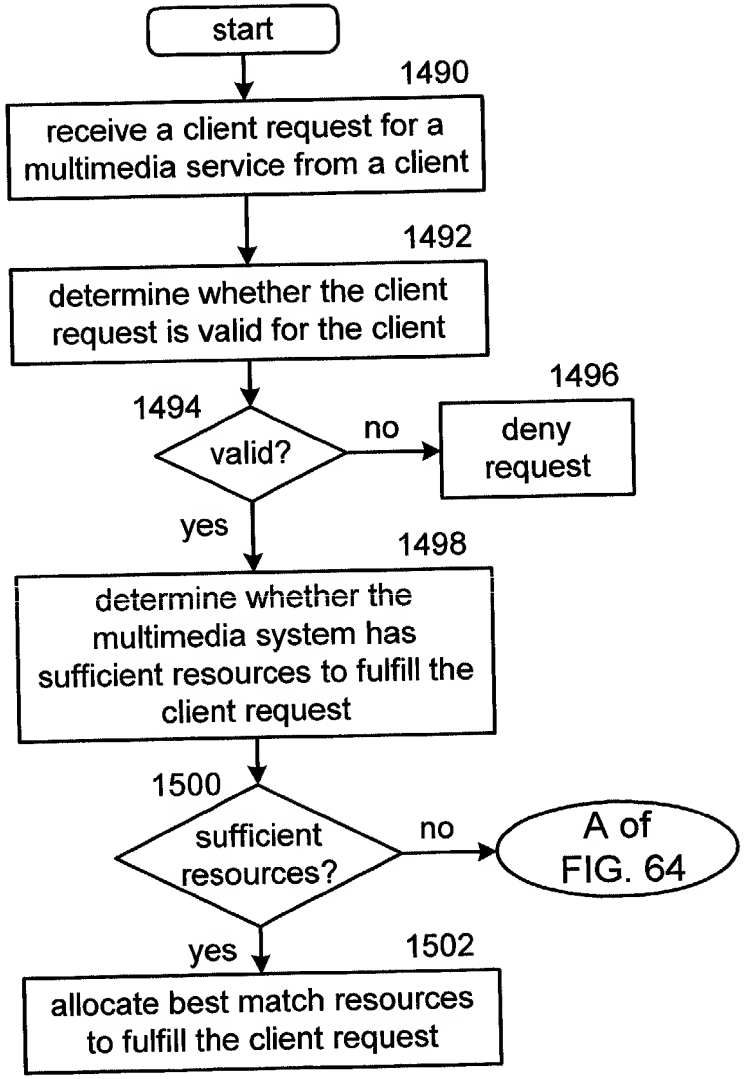

A
1464
determine whether an alternate multimedia service is available
and/or
1466
for a video program, adjust resolution to a default resolution
1468
for a video program, adjust video quality to a default video quality
1470
query the client to select the alternative multimedia service
1472
automatically select the alternate multimedia service based a pre-programmed alternative selection
1474
determine whether the client request has priority over a currently serviced client request
1476
when the client request has priority, preempt the currently serviced client request to obtain the sufficient resources
1478
determine whether allocation of the resources can be reallocated to fulfill the client request
1480
when the plurality of resources can be reallocated, adjust allocation of the resources to fulfill the client request
1482
monitor use of the resources in comparison to capabilities of the resources
1484
when the use of at least some of the resources is not optimal, adjust the allocation of the resources

FIG. 64


start
1490
receive a client request for a multimedia service from a client
1492
determine whether the client request is valid for the client
1494
valid?
no
1496
deny request
yes
1498
determine whether the multimedia system has sufficient resources to fulfill the client request
1500
sufficient resources?
no
A of FIG. 64
yes
1502
allocate best match resources to fulfill the client request

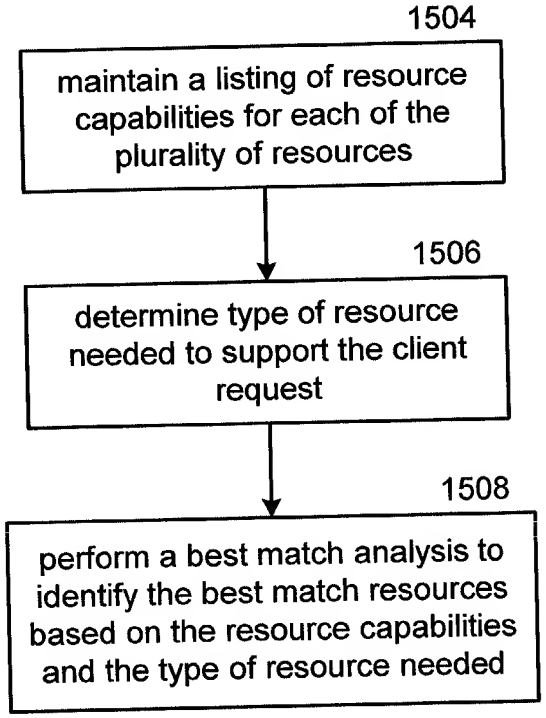

1504
maintain a listing of resource capabilities for each of the plurality of resources
1506
determine type of resource needed to support the client request
1508
perform a best match analysis to identify the best match resources based on the resource capabilities and the type of resource needed

FIG. 65